

BIBLIOGRAPHY

Abdel-Mogib, M., Basaif, S.A., Asiri, A.M, Sobahi, T.R., Batterjee S.M. (2001). New clerodone diterpenoid and flavonol-3-methyl ethers from *Dodonaea viscosa*. *Pharmazie* **56(10)**: 830-831.

Adzu, B., Amos, S., Dzarma, S., Muazzam, I., Gamaniel, K.S. (2002). Pharmacological evidence favouring the folkloric use of *Diospyros mespiliformis* Hochst in the relief of pain and fever. *Journal of Ethnopharmacology* **82**: 191-195.

Alcaraz, L.E., Blanco, S.E., Puig, O.N., Tomas, F., Ferretti, F.H., (2000). Antibacterial activity of flavonoids against methicillin-resistant *Staphylococcus aureus* strains. *Journal of Theoretical Biology* **205**: 231-240.

Andary, C., Motte-Florac, E., Ramos-Elorduy, J. and Privat, A. (1996). Chemical screening: Updated methodology applied to medicinal insects. The 3rd European Colloquium on Ethnopharmacology and 1st International Conference of Anthropology and History of Health and Disease.

Antanasopoulos, N.A. (1982). Flame methods manual for atomic absorption, Victoria, Australia: GBC Scientific Equipment Pty. Ltd.

Aruoma, O.I. (2003). Methodological considerations for characterizing potential antioxidant actions of bioactive components in plant foods. *Mutation Research* **523-524**: 9-20.

Badaway, M.E.I., Rabea, E.I., Rogge, T.M., Stevens, C.V., Steurbaut, W., Höfte, M. and Smagghe, G. (2005). Fungicidal and insecticidal activity of O-Acyl Chitosan derivatives. *Polymer Bulletin* **54(4-5)**: 279-289.

Beach, E.F., Munks B. and Robinson A. (1943). The Amino Acid Composition of Animal Tissue Protein. *The Journal of Biological Chemistry* **148**: 431-439.

Begue, W.J. and Kline, R.M. (1972). The use of tetrazolium salts in bioautographic procedures. *Journal of Chromatography* **64**: 182-184.

Bown, D. Encyclopaedia of Herbs and their uses. Dorling Kindersley, London. In <http://www.biblio.org/dodonaea+viscosa> (Accessed 17 July 2004).

Buening, M.K., Chang, R.L., Huang, M.T., Fortner, J.G., Wood, A.W. and Conney, A.H. (1981). Activation and inhibition of benzo(a)pyrene and aflatoxin B1 metabolism in human liver microsomes by naturally occurring flavonoids. *Cancer Research* **41**: 67-72.

Burda, S. and Oleszek, W. (2001). Antioxidant and antiradical activities of flavonoids. *Journal of Agricultural Food Chemistry* **49**: 2774-2779.

Chavunduka, D.M. (1975). Insects as a source of food to the African. *Rhodesian Science News* **9**: 217-220.

Cherry, R. (1993). Use of insects by Australian Aborigines. Cultural Entomology Digest 1. In: <http://www.insects.org> (date of access, 24/11/2006).

Chin, L., Lin, Y., Huang, C., Wen, K. (2000). Evaluation of quantitative analysis of flavonoid aglycones in *Ginkgo biloba* extract and its products. *Journal of Food and Drug Analysis* **8**: 289-296.

Cholbi MR, Paya M and Alcaraz MJ (1991). Inhibitory effects of phenolic compounds on CC14-induced microsomal lipid peroxidation. *Experientia* **47**: 195-199.

Ciolino, H.P. and Yeh, G.C. (1999). The flavonoid galangin is an inhibitor of CYP1A1 activity and an agonist/antagonist of the aryl hydrocarbon receptor. *British Journal of Cancer* **79**: 1340-1346.

Cociancich, S., Ghazi, A., Hetru, C., Hoffman, J.A. and Letellier, L. (1993). Insects defensin an inducible antibacterial peptide, forms voltage-dependant channels in *Micrococcus luteus*. *Journal of Biological Chemistry* **268**: 19239-19245.

Cohen, E. (1993). Chitin synthesis and degradation as targets for pesticide action. *Archives of Insects Biochemistry and Physiology* **22(1-2)**: 245-261.

Colodel, E.M., Traverso, S.D., Seitz, A.L., Correa, A., Oliverira, F.N., Driemeier, D. and Gava, A. (2003). Spontaneous poisoning by *Dodonaea viscosa* (Sapindaceae) in cattle. *Veterinary Human Toxicology* **45(3)**: 147-148.

Costa-Neto, E.M. (1994). Etnoentomologia Alagoana, com Ênfase na Utilização Medicinal de Insectos, Relatório de Iniciação Científica CNPq, UFAL, Maceió.

Costa-Neto, E.M. (2002). The use of insects in folk medicine in the State of Bahia, Northeastern Brazil, with notes on insects reported elsewhere in Brazilian folk medicine. *Human Ecology* **30(2)**: 254-263.

Dadd, R.H., (1985). Nutrition: Organisms. In *Comprehensive Insect Physiology, Biochemistry and Pharmacology*, vol. 4 eds Kerkut GA and Gilbert LI, Pergamon Press, Oxford, Pp. 313-390.

Dawson, R.M., Jarvis, M.W., Jefferies, P.R., Payne, T.G. and Rosich, R.S. (1966). Acidic constituents of *Dodonaea lobulata*. *Australian Journal of Chemistry* **19**: 2133-2142.

DeFoliart, G.R. (1999). Insects as Food: Why the Western Attitude is Important. *Annual Review of Entomology* **44**: 21-50.

DeFoliart, G.R. (1992). Insects as human food, some nutritional and economic aspects. *Crop Protection* **11**: 395-399.

DeFoliart, G.R. (1989). The human use of insects as food and as animal feed. *Bulletin of Entomological Society of America* **35**: 22-35.

DeFoliart, G.R. (1975). Insects as source of protein. *Bulletin of Entomological Society of America* **21(3)**: 161-163.

de Whalley, C.V., Rankin, S.M., Hoult, J.R., Jessup, W. and Leake, D.S. (1990). Flavonoids inhibit the oxidative modification of low density lipoproteins by macrophages. *Biochemistry and Pharmacology* **39**: 1743-1750.

Dimarcq, J.L. and Hunneyball, I. (2003). Pharma-entomology: When bugs become drugs. *Drugs Discovery Today* **8(3)**: 107-110.

Dimarcq, J.L., Bulet, P., Hetru, C. and Hoffman, J. (1988). Cystein-rich antimicrobial peptide in insects. *Biopolymers* **47**: 465-477.

Dodson, R.Y., Young, E.R. and Soliman, A.M., (1992). Determination of total Vitamin C in various food matrixes by Liquid Chromatography and Fluorescence Detection. *Journal of Association of Official Analytical Chemists International* **75(5)**: 887-891.

Dominguez, X.A., Fraco, R., Cano, C.G. and Chavez, C.N. (1980). *Revue Latinoam Quimica* **11**:150.

Dreyer, J.J. (1968). Biological assessment of protein quality: digestibility of the proteins in certain foodstuffs. *South African Medical Journal* **42**: 1304-1313.

Dreyer, J.J. and Wehmeyer, A.S., (1982). On the nutritive value of mopani worms. *South African Journal of Science* **78**: 33-35.

Edwards, P.J. and Wratten, S.D. (1985). The value of Secondary Plant Substances for Insects: Communication and Defense. In *Ecology of Insect-Plant Interactions*, chapter 5. Edward Arnold Publishers , 41 Bedford Square, London Pp 31.

Einarsson, S., Josefsson, B. and Lagerkvist, S. (1983). Determination of Amino Acids with 9-Flourenylmethyl Chloroformate and reversed-phase High-Performance Liquid Chromatography. *Journal of Chromatography* **282**: 609-618.

Eloff, J.N. (2000). On expressing the antibacterial activity of plant extracts- a small first step in applying scientific knowledge to rural primary health care. *South African Journal of Science* **96**: 116-118.

Eloff, J.N. (1998a). Which extractant should be used for the screening and isolation of antimicrobial components from plants? *Journal of Ethnopharmacology* **60**: 1-8.

Eloff, J.N. (1998b). A sensitive and quick microplate method to determine the minimal inhibitory concentration of plant extracts for bacteria. *Planta Medica* **64**: 711–713.

Farnsworth, N.F. (1984). The role of medicinal plants in drug development. In *Natural Products and Drug Development*, Krogsgaard-Larsen, P., Brogger Christensen, L., Kofold, H. (eds). Munksgaard, Copenhagen, Pp. 17-28.

Faure, J.C. (1944). Pentatomid bugs as human food. *Journal of Entomological Society of South Africa* **VII**: 110-112.

Fehlbaum, P., Bulet, P., Chemysu, S., Briand, J.P., Roussel, J.P., Letellier, L., Hetru, C. and Hoffman, J.A. (1996). Structure-activity analysis of Thanatin, a 21-Residue inducible insect defense peptide with sequence homology to frog skin antimicrobial peptides. *Proceedings of the National Academy of Sciences of the United State of America* **93**: 1221-1225.

Fehlbaum, P., Bulet, P., Michaut, L., Laqueux, M., Broekaert, W.F., Hetru, C. and Hoffman, J.A. (1994). Insect immunity. Septic injury of *Drosophila* induces the synthesis of a potent antifungal peptide with sequence homology to plant antifungal peptides. *Journal of Biological Chemistry* **269**: 33159-33163.

Ferreira, D., Kamara, B.I., Brandt, E.V. and Joubert, E. (1998). Phenolic compounds from *Cyclopia intermedia* (honeybush tea). *Journal of Agriculture and Food Chemistry* **46**: 3406–3410.

Germishuizen, G. and Meyer, N.L. (2003). In *Plants of southern Africa: an annotated checklist*. National Botanical Institute Publishers, Pretoria South Africa, Pp 860.

Getie, M., Gebre-Mariam, T., Rietz, R., Höhne, C., Huschka, C., Schmidte, M., Abate, A. and Neubert, R.H.H. (2003). Evaluation of the anti-microbial and anti-inflammatory activities of the medicinal plants *Dodonaea viscosa*, *Rumex nervosus* and *Rumex abyssinicus*. *Fitoterapia* **74**: 139-143.

Getie, M., Gebre-Miriam, T., Rietz, R, and Neubert, R. (2000). Distribution of quercetin, kaempferol and isorhamnetin in some Ethiopian medicinal plants used for treatment of dermatological disorders. *Ethiopian Pharmacological Journal* **18**: 25-34.

Glavind, J. and Holmer, G. (1967). Thin-layer chromatographic determination of antioxidants by the stable free radical 1,1-diphenyl-2-picrylhydrazyl. *Journal of American Oil Chemists Society* **44**: 539-542.

Goodman, W.G. (1989). Chitin: A magic bullet? *The Food Insects Newsletter* **2(3)**: 1, 6-7.

Gullan, P.J. and Cranston, P.S. (1986). In *The Insects An Outline of Entomology*, 3rd Ed. Blackwell publishing, California, USA. Chapter 1: pp 1-19.

Halliwell, B. and Gutteridge, J.M.C. (1995). The definition and measurement of antioxidants in biological systems. *Free Radical Biology and Medicine* **18**: 125–126.

Harborne, J.B. (1993). In: *Introduction to Ecological Biochemistry* 4th ed. Academic Press, London. Hellou J, Andersen RJ and Thompson JE (1982). Terpenoids from the dorid nudibranch *Candlina luteomarginata*. *Tetrahedron* **38(13)**: 1875-1879.

Harborne, J.B. (1986). In *Plant Flavonoids in Biology and Medicine* eds Cody V, Middleton E and Harborne JB. Alan R. Liss:publishers, New York Pp 15-24.

Harborne, J.B., Greenham, J., William, C.A. and Eagles, J. (1994). Variation in the lipophilic and vacuolar flavonoids of the genus *Vellozia*. *Phytochemistry* **35**: 1475 – 1480.

Harborne, J.B. and Mabry, T.J. (1982). *The flavonoids: Advances in Research*. Chapman and Hall Ltd. Cambridge, UK. Pp Spectral 59.

Harris, L.E. (1970). Nutrition Research Techniques for Domestic and Wild Animals Volume 1 AOAC 16th Ed. (1995). Association of Official Analytical Chemists, INC.

Havsteen, B. (1983). Flavanoids, a class of natural products of high pharmacological potency. *Biochemistry and Pharmacology* **32**: 1141-1148.

Hitchcock, S.W. (1962). Insects and Indians of the Americas. *Bulletin of the Entomological Society of America* **8**: 181-187.

Horie, T., Ohtsuru, Y., Shibata, K., Yamashita, K., Tsukayama, M. and Kawamara, Y. (1998). ¹³C NMR Spectral assignment of the A-ring of polyoxygenated flavones. *Phytochemistry* **47(5)**: 865-874.

Huang, F-C. and Kutchan, T.M. (2000). Distribution of Morphinan and benzo© phenanthridine alkaloid gene transcript accumulation in *Papaver somniferum*. *Phytochemistry* **53(5)**: 555-564.

Ibid, (1983). Flavonoids from *Dodonaea viscosa*. *Phytochemistry* **22**:1253-1256.

Kang, S.S., Kim, J.S., Son, K.M., Kim, H.P. and Chang, H.W. (2003). Isolation of COX-2 inhibitors from *Alpinia officinarum*. *Korean Journal of Pharmacognosy* **31**: 57-62.

Kellerman, T.S., Coetzer, J.A.N., Naude, T.W., Botha, C.J. (2005). Plant Poisonings and Mycotoxicoses of Livestock in southern Africa. 2nd Ed. Oxford University Press southern Africa, Cape Town, South Africa,

Kim, J-D., Liu, L., Guo, W. and Meydani, M. (2006). Chemical structure of flavonols in relation to modulation of angiogenesis and immune-endothelial cell adhesion. *Journal of Nutritional Biochemistry* **17**: 165-176.

Kodonki, K.K., Leclercq, M. and Gaudin-Harding, F. (1987). Vitamin estimations of three edible species of Attacidae caterpillars from Zaire. *International Journal of Vitamin and Nutritive Research* **57**: 333-334.

Kunin, W.E. and Lawton, J.H. (1996). Does biodiversity matter? Evaluating the case for conserving species. In *Biodiversity: A Biology of Numbers and Differences*, eds Gaston, KJ, Blackwell Science, Oxford, Pp 283-308.

Landry, S.V., DeFoliart, G. and Sundae, M.L. (1986). Larval protein quality of six species of Lepidoptera (Saturniidae, Sphingidae, Noctuidae). *Journal of Economical Entomology* **79**(3): 600-604.

Langley-Evans, S.C. (2000). Antioxidant potential of green and black tea determined using the ferric reducing power (FRAP) assay. *International Journal of Food Science and Nutrition* **51**: 181–188.

Latha, S. and Daniel, M. (2001). Phenolic antioxidants of some common pulses. *Journal of Food Science and Technology (India)* **38**: 272-273.

Lazarowitz, V. and Morris, T.C. (2004). Use of chitosan to decrease skin irritation caused by shaving. Noble BW, United States Patents: 6719961.

Leitao, G.G., Soares, S.S.V., de Barros, T., Brito, M. and Monache, F.D. (2000). Kaempferol glycosides from *Siparuma apiosyce*. *Phytochemistry* **55**(6): 679-682.

Lenko, K. and Papavero, N. (1979). *Insectos no Folclore*, Conselho Estadual de Artes e Ciencias Humans, Sao Paulo.

Lima, K.L.G. (2000). *Etnoentomological no Recononcavo Baiano: Um Estudo de Caso no Povoado de Capueiruqu, Cachoeira*, Monograph (Specialisation in Entomology), UEFS, Feira de Santana.

Lyon, W.F. (2005). Human Diet. In: <http://www.troubledtimes/humandiet> (Accessed 26/11/2005).

Manz, U. and Philipp, K. (1981). A method for the routine determination of Tocopherols in animal feed and human foodstuffs with the aid of High-Performance Liquid Chromatography. *International Journal for Vitamin and Nutrition Research* **51**: 342-348.

Marais, E., (1996). Omaungu in Namibia: *Imbrasia belina* (saturniidae: Lepidoptera) as a commercial resource. In Proceedings of the first Multidisciplinary Symposium on Phane 18 June 1996, Gaborone; eds Gashe BA and Mpuchane SF. Department of Biological Sciences, University of Botswana.

Markham, K.R. (1982). Techniques of Flavonoid Identification. Academic Press Inc. London (Ltd) Pp. 84, 88.

Mbata, K.J. (1995). Traditional uses of arthropods in Zambia: I. The food insects. *Food Insects Newsletter* **8(3)**: 1, 5-7.

Mensor, L.L., Menezes, F.S., Leitao, G.G., Reis, A.S., Santos, T.C., Coube, C.S., Leitao, S.G. (2001). Screening of Brazilian plant extracts for antioxidant activity by the use of DPPH free radical method. *Phytotherapy Research* **15(2)**: 127-130.

Mitsuhashi, J. (1997). Insects as traditional foods in Japan. *Ecology of Food Nutrition* **36(2-4)**: 187-199.

Mitsuhashi, J. (1988). Rice with cooked wasps: Emperor Hirohito's favourite dish. *Food Insects Newsletter* **1(2)**: 2

Moriyama, H., Lizuka, T., Nagai, M., Miyataka, H. and Satoh, T. (2003). Anti-inflammatory activity of heat-treated *Cassia alata* leaf extracts and its flavonoid glycoside. *Yakugaku Zasshi* **123**: 607-611.

Nagaraju, A. and Karimulla, S. (2002). Accumulation of elements in plants and soils in and around Nellore micabell, Andhra Pradesh, India- a Biogeochemical study. *Environmental Geology* **41(7)**: 852-860.

Nanjo, F., Goto, K., Seto, R., Suzuki, M., Sakai, M. and Hara, Y., (1996). Scavenging effects of tea catechins and Balentine DA and Frei B, Antioxidants in tea. Critical Reviews in Food Science and Nutrition. their derivatives on 1,1-diphenyl-2-picrylhydrazyl radical. *Free Radical Biology and Medicine* **21**: 895-902.

NCCLS. Performance Standards for Antimicrobial Disk Susceptibility Tests, 4th edn. Approved Standard. NCCLS Document M2-A4. The National Committee for Clinical Laboratory Standards, Villanova, PA, 1990.

O'Flaherty, R.M. (2003). The Tragedy of Property: Ecology and Land Tenure in Southeastern Zimbabwe. *Human Organisation* **62(2)**: 178-186

Op de Beck, P., Cartier, G., David, B., Dijoux-Franca, M-G. and Mariotte, A-M. (2003). Antioxidant Flavonoids and Phenolic Acids from Leaves of *Leea guineense* G. Don (Leeaceae). *Phytotherapy Research* **17**: 345–347

Orr, B. (1986). Improvement of women's health linked to reducing widespread anemia. *International Health News* **7**: 3.

Palgrave, K.C. (2002). Trees of Southern Africa. New Edition Revised and updated by Palgrave, M.C. Struik Publishers, Cape Town, South Africa Pp 655, 905.

Park, Y.K., Inegaki, M., Alencar, S.M., Wang, H.K., Bostow, K., Cosentino, M. and Lee, K.H. (2000). Determination of anti-HIV activity from extracts of propolis collected from different regions of Brasil. *Mensagem Doce* **56**: 2-5.

Park, Y.K., Koo, M.H., Sato, H.H. and Contado, J.L. (1995). Survey of some components of propolis which were collected by *Apis mellifera* in Brazil. *Archives of Biological Technology* **38**: 1253-1259.

Payne, T.G. and Jefferies, P.R. (1973). The chemistry of *Dodonaea* Spp-IV. Diterpene and flavonoid components of *D. attenuate*. *Tetrahedron* **29**: 2575-2583.

Pemberton, R.W. (1999). Insects and other arthropods used as drugs in Korean traditional medicine. *Journal of Ethnopharmacology* **65(3)**: 207-216.

Picker, M., Griffiths, C. and Weaving, A. (2000). In field guide to insects of South Africa. M.C. Struik Publishers, Cape Town, South Africa Pp 134.

Pietta, P-G. (2000). Flavonoids as Antioxidants. *Journal of National Proceedings* **63**: 1035-1042.

Phelps, R.J., Struthers, J.K. and Moyo, S.J.L. (1975). Investigations into the nutritive value of *Macrotermes falciger* (Isoptera: Termitidae). *Zoologica Africana* **10**: 123-132.

Quin, P.J. (1959). *Foods and Feeding Habits of the Pedi*, Johannesburg: Witwatersrand Univ. Press, Pp 278.

Rabea, E.I., Badaway, M.E.I., Rogge, T.M, Stevens, C.V., Höfte, M., Steurbaut, W. and Smagghe, G. (2005). Insecticidal and fungicidal activity of new synthesized chitosan derivatives. *Pest Management Science* **61(10)**: 951-960.

Ramos-Elorduy, J. (1997). Insects: a sustainable source of food? *Ecology of Food Nutrition* **36(2-4)**: 247-276.

Ramos-Elorduy, J., Moreno, J.M.P., Prado, E., Perez, M.A., Otero, J.L. and de Guevara, O.L. (1997). Nutritional value of edible insects from the state of Oaxaca, Mexico. *Journal of Food Composition and Analysis* **10**: 142-147.

Ramos-Elorduy, J. (1982a). *Los insectos Como Fuente de Proteinas en el Futuro*. 149 pp. Ed. Limusa Mex. La. Ed.

Ramos-Elorduy, J., Bourges, R. H. and Pino, M.J.M. (1982b). Alor nutritivo y calidad de la proteína de algunos insctos comestibles de México. *Folia Entomológica Mexican* **53**: 111-118.

Ramos-Elorduy, J. (1974). *Los Insectos Como Fuente de Proteínas*. S.E.P. Dirección General Derechos de Autpr Núm. 16391/71, in the WHO (Report Number R/00486/174), México, Pp 46.

Rashid, M.A., Armstrong, J.A., Gray, A.I. and Waterman, P.G. (1992). Alkaloids, Flavonoids and Coumarins from *Drummondita hassellii* and *D. calida*. *Phytochemistry* **31(4)**: 1265-1269.

Raubenheimer, D. (1992). Tannic acid, protein and digestible carbohydrate: dietary imbalance and nutritional compensation in locusts. *Ecology* **73**: 1012-1027.

Raubenheimer, D., and Simpson, S.J. (1993). The geometry of compensatory feeding in the locust. *Animal Behavior* **45**: 953-964.

Rice, L.B. (2006). Antimicrobial resistance in gram-positive bacteria. *The American Journal of Medicine* **119** (6 Supp 1): S1-9.

Rice-Evans, C.A., Miller, N.J., Paganga, G. (1996). Structure –Antioxidant relationships of flavonoids and phenolic acids. *Free Radical Biology and Medicine* **20**(7): 933-956.

Rojas, A., Hernandez, L., Pereda-Miranda, R., and Mata, R. (1992). Screening for antibacterial activity of crude drug extracts and pure natural products from Mexican medicinal plants. *Journal of Ethnopharmacology* **35**(3): 275-283.

Rossi, M.H., Yoshida, M. and Maia, J.G.S. (1997). Neolignans, Styrylpyromes and Flavonoids from an Aniba species. *Phytochemistry* **45**(4): 1263-1269.

Sachdev, K. and Kulshreshtha, D.K. (1984). Dodonic acid, a new diterpenoid from *Dodonaea viscosa*. *Planta Medica* **50**: 448-449.

Sachdev, K. and Kulshreshtha, D.K. (1983). Flavonoids from *Dodonaea viscosa*. *Phytochemistry* **22**(5):1253-1256.

Samways, M.J. (1994). In *Insect Conservation Biology*. Chapman and Hall, Pp 3S8.

Santos-Oliveira, JF., de Passos, C.J., de Bruno, S. and Magdalena, S.M. (1976). The nutritional value of four species of insects consumed in Angola. *Ecology of Food Nutrition* **5**: 90-97.

Sekher, P.A., Chan, T.S., O'Brien, P.J. and Rice-Evans, C.A. (2001). Flavonoid B-ring chemistry and antioxidant activity: fast reaction kinetics. *Biochemistry and Biophysical Research Communication* **282**: 1161-1168.

Simpson, S.J. and Raubenheimer, D. (1993). A multi-level analysis of feeding behavior: the geometry of nutritional decisions. *Philosophical transactions of the royal Society of London* **342**: 381-402.

Simpson, S.J. and Simpson, C.L. (1990). The mechanism of nutritional compensation by phytophagous insects. In *Insect-Plant Interactions*, eds Bernays EA . CRC Press, Boca Raton FL, Pp 111-160.

Skoog, D.A. and West, D.M. (1980). In *Principles of Instrumental Analysis*, second edition. Saunders College, Philadelphia, Pp 376- 412, 476-496.

Slansky, F. and Scriber, J.M. (1985). Food consumption and utilisation. In *Comprehensive Insects Physiology, Biochemistry and Pharmacology* vol 4 eds Kerkut GA and Gilbert LI Pergamon Press, Oxford, Pp 87-163.

Smit, L.E. and Nel, M.M. (1987). Vergelyking tussen die standaardkoperreduksie, chloramien T-metodes en 'n gewysigde hoëdrukvlloeistofchromatografiese metode vir die bepaling van lactose in melk- en melkprodukte. *South African Journal of Dairy Science* **19(2)**: 62-64.

So, F.V., Guthrie, N., Chambers, A.F. and Carroll, K.K. (1997). Inhibition of proliferation of estrogen receptor-positive MCF-7 human breast cancer cells by flavonoids in the presence and absence of excess estrogen. *Cancer Letter* **112**: 127-133.

Srivastava, A., Shukla, Y. and Kumar, S. (2000). Recent development in plant derived antimicrobial constituents - a review. *Journal of Medicinal and Aromatic Plant Sciences* **22**: 349-405.

Stack, J., Dorward, A., Gondo, T., Frost, P., Taylor, F., Kurebgaseka G, Gwavuya, S, Musitini, T., Rutamaba, W., Tlotlego, S. and Zhou, R.. Mopane worm utilization and rural livelihoods in Southern Africa. In *Presentation for International Conference on Rural Livelihoods, Forest and Biodiversity 19-23 May 2003, Bonn Germany*.

Stahl, E. (1969). *Thin-Layer Chromatography*. 2nd Ed. Springer-Verlag Berlin Heidelberg New York. Pp 904.

Steiner, H., Hultmark, D., Engstrom, A., Bennich, H. and Boman, H. G. (1981). Sequence and specificity of two antibacterial proteins involved in insect immunity. *Nature* **292**: 246–248.

Styles, C.V. (1994). The big value in mopane worms. *Farmer's Weekly (July)* **22**: 20-22.

Tenover, F.C. (2006). Mechanisms of antimicrobial resistance in bacteria. *The American Journal of Medicine* **119 (6 Supp 1)**: S3-10.

Toms, R. and Thangwana, M. (2003). Eat your bugs In: <http://www.scienceinafrica.com> (Accessed, 18/10/2003).

van Heerden, F.R., Viljoen, A.M., van Wyk, B-E. (2000). The major flavonoid of *Dodonaea angustifolia*. *Fitoterapia* **71**: 602 – 604

Wangensteen, H., Samuelson, A.B. and Malterud, K.E (2004). Antioxidant activity from Coriander. *Food Chemistry* **88(2)**: 293-297.

Watkins, S.D., Hills, M.J., Birch, R.A. (2002). Use of methyl-2-pyrrolidone-5-carboxylate as an insect repellent. United State Patents: 638991.

Wilson, K.B. (1990). Biological dynamics and human welfare: a case study of population, health and nutrition in southern Zimbabwe. PhD Thesis. University College London

Wimalasiri, P. and Wills, R.B.H, (1985). Simultaneous analysis of thiamine and riboflavin in foods by High-Performance Liquid Chromatography. *Journal of Chromatography* **318**: 412-416.

Wiseman, S.A., Balentine, D.A. and Frei, B, (1970). Antioxidants in tea. *Critical Reviews in Food Science and Nutrition* **37**: 705–718.

Wollenweber, E., Mann, K. and Yatskievych, G. (1986). Aglycones flavoniques dans l' excretat des feuilles de quelques plantes du Mexique et des Etats Unis. *Bulletin de Liaison-Grape Polyphenols* **13**: 621-623.

Wright, W.C. (2005). Plant -derived Antimalarial Agents. *Phytochemistry Reviews* **4(1)**: 55-61.

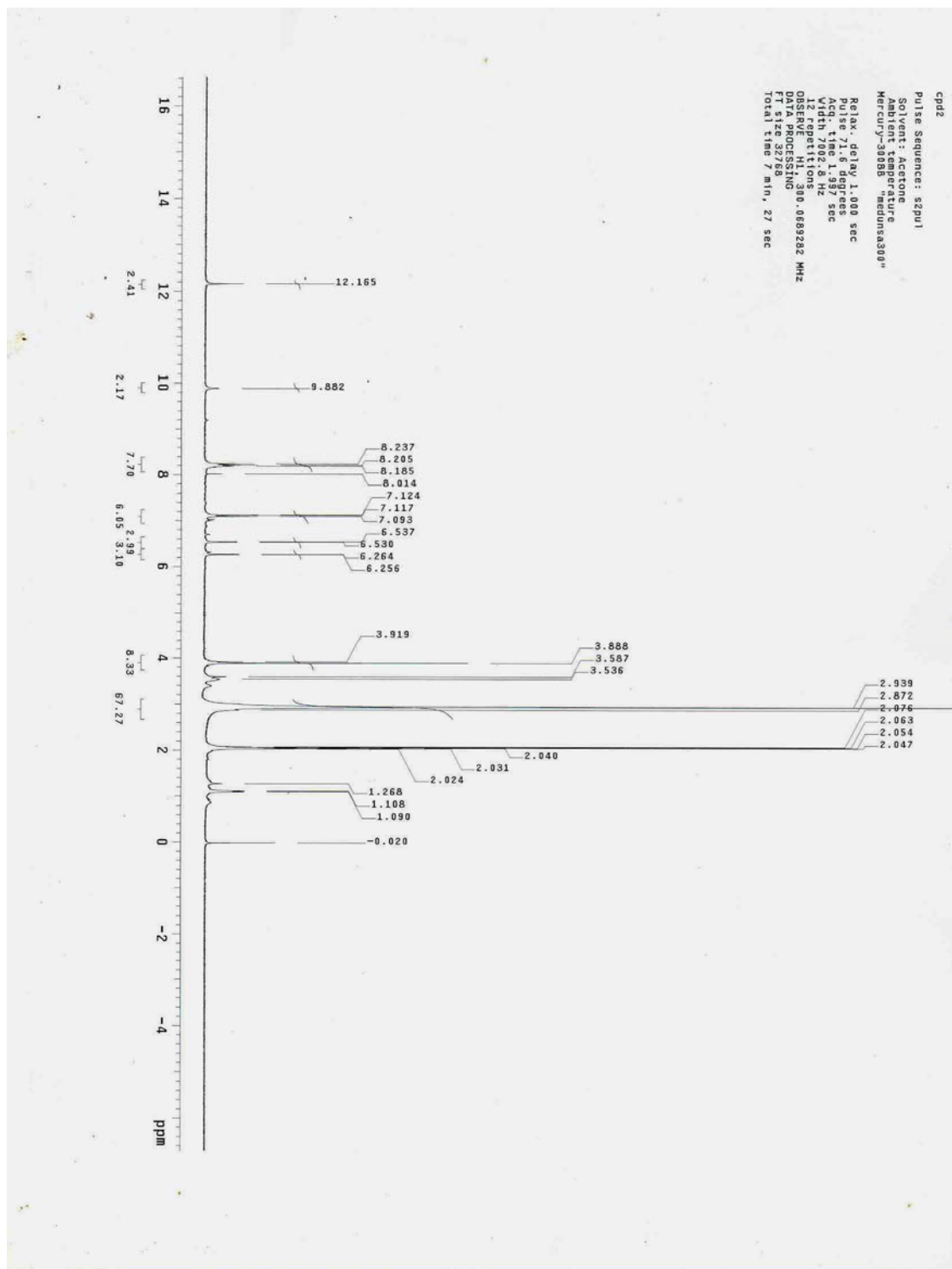
Yamakawa, M. (1998). Insects antibacterial proteins: Regulatory mechanisms of their synthesis and a possibility as a new antibiotics. *Journal of Sericultural Science of Japan* **67(3)**: 163-182.

Zasoski, R.J. and Burau, R.G. (1977). "A Rapid Nitric Acid Digestion Method for Multi-Element Tissue Analysis". *Communications in Soil Science and Plant Analysis* **8(5)**: 425-436.

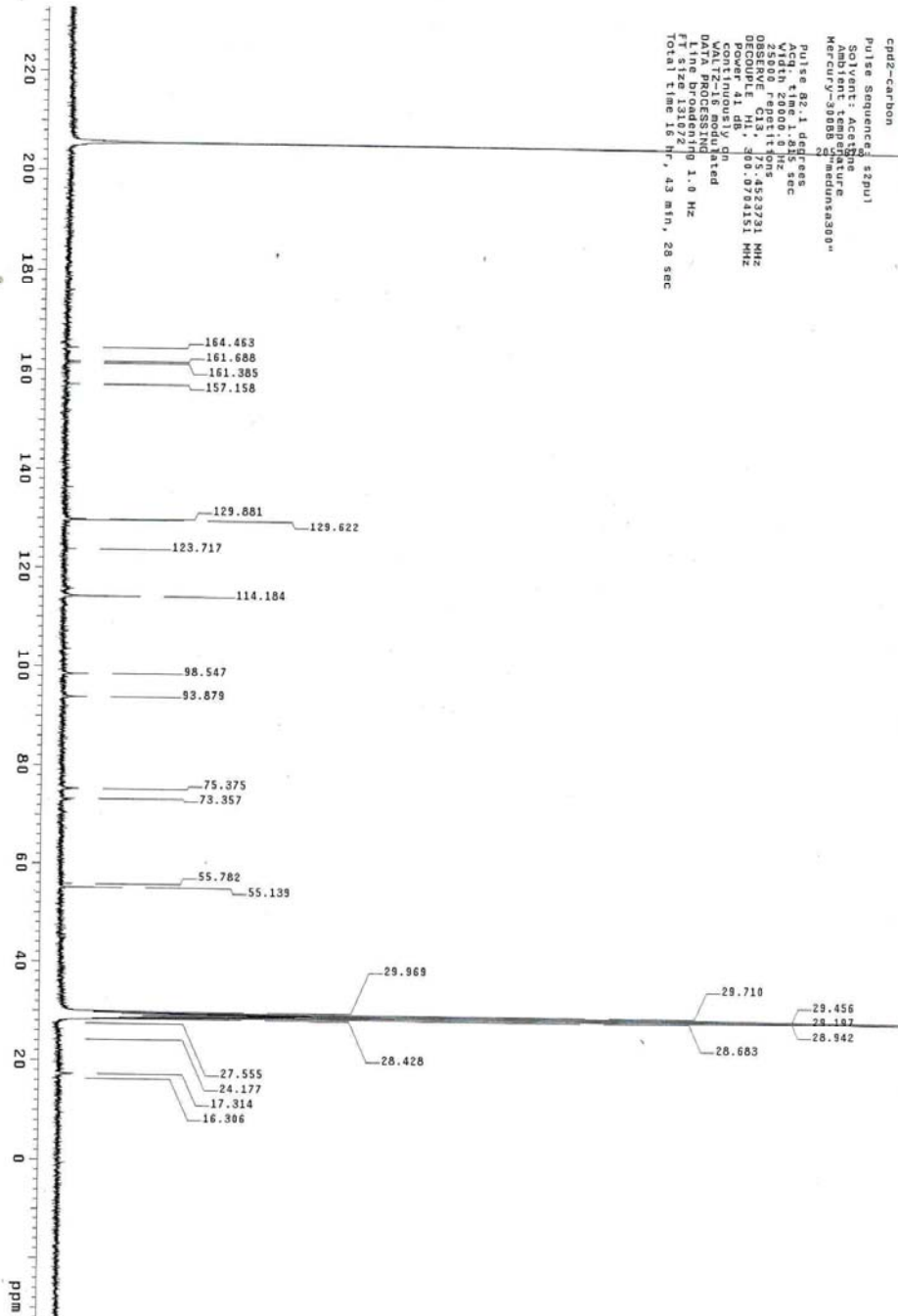
Zimmer, C. (1993). The healing power of maggots. *Discover* **17**: 1-6.

Appendix

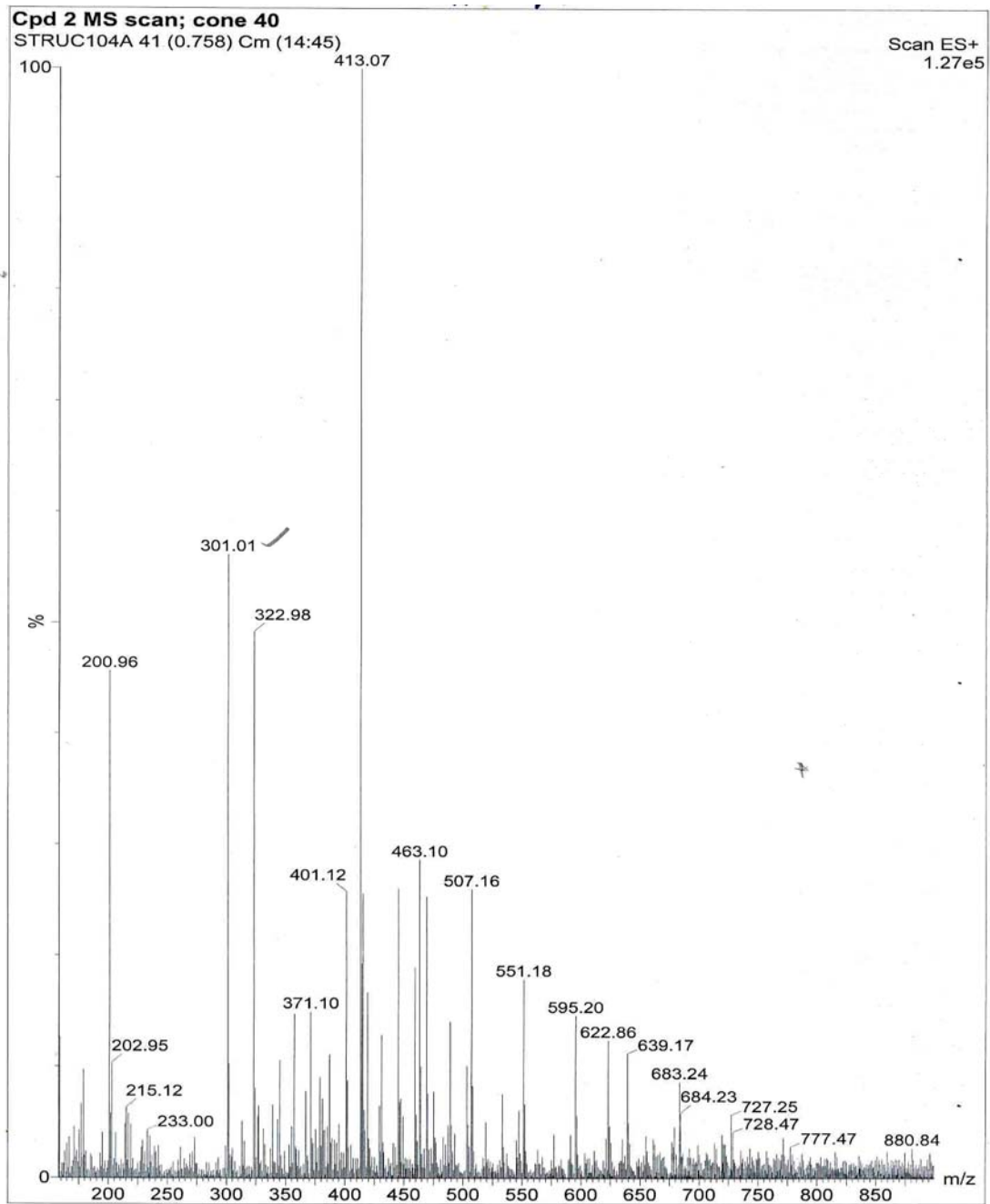
¹H NMR Spectrum of Compound 4 (4'-O-methylkaempferol)



¹³C NMR Spectrum of Compound 4 (4'-O-methylkaempferol)



Mass Spectrum of Compound 4 (4'-O-methylkaempferol)





PRO€INVEST

Grant Application Form

Call for Proposals 2006

Demand-Driven activities - Intermediary Organisations

8.ACP.TPS.108

Name of applicant:	Association for African Medicinal Plants Standards
Type of activity	<input type="checkbox"/> Public Private Dialogue <input checked="" type="checkbox"/> Capacity Building <input type="checkbox"/> Mission to the EU <input type="checkbox"/> Mission to or in ACP <input type="checkbox"/> Company Twinning

Dossier N°	
(for official use only)	

CONCEPT NOTE APPLICATION - Association for African Medicinal Plants Standards

1. Summary of the action

1.1 Brief description of the proposed action.

The Association for African Medicinal Plants Standards (AAMPS) is a recently formed trade association consisting of many of Africa's leading organisations involved in the identification, research, development, manufacture and trade in herbal medicines and related products. Since its inception AAMPS has been preparing and promoting trade standards and regulations for the cultivation, manufacture and use of 50 of Africa's most important medicinal plants. This information will be used as the starting point for the preparation of an African Herbal Pharmacopoeia (see www.aamps.net).

This proposed action is a capacity-building exercise designed to strengthen the financial, administrative and technical skills of the association to enable it to carry out these complex and important tasks.

Without the development and promotion of such standards, the development of safe and efficacious herbal drugs and dietary supplements for national, regional and international sale will not be possible. Africa currently accounts for less than 5% of the turnover of this multibillion dollar industry. The fact that sub-Saharan Africa [c. 59,800] and the Indian Ocean Islands [c 12,000] hold nearly 30% of the world's estimated 240,000 plant species diversity clearly illustrates the discrepancy in current trade.

AAMPS has members from across the whole of Africa as well as from Europe, Asia and North America. In order to expand its membership network and enhance its revenue, it urgently needs to strengthen its capacity to recruit members and raise other forms of income so that the organisation can become self sustaining.

The proposed action includes

A Preparing a detailed 5 year business plan outlining strategic planning, focussing on potential sources of revenue, financial sustainability for AAMPS, recommendations on membership recruitment, administration and international promotion.

B Organising an international workshop to discuss and approve the business plan and to authenticate and promote the 50 herbal profiles currently being prepared by AAMPS in order to increase the revenue of AAMPS, either through the sale of this information or through increasing membership.

C Upgrading and expanding of the AAMPS website and the preparation of a range of promotional materials designed to increase the number of members of AAMPS and to enhance communications and a sense of identity between existing members of this organisation.

D Investigating other opportunities for fundraising, e.g., by a royalty paid by subcontractors for quality control or research projects commissioned by industry and allocated by AAMPS.

AAMPS is registered in Mauritius and holds the intellectual property rights to all the documentation prepared under its auspices. This action will complement interventions already supported by CDE and CTA which have helped finance the selection, research, laboratory testing and preparation of the final drafts for the 50 most important African medicinal plant species standards to be completed by the end of the first half of 2007.

Through an efficient AAMPS this project would

- encourage the trade in African medicinal plants across international borders,
- lead to substantial value addition of medicinal plants,
- create jobs for people collecting or growing medicinal plants,
- alleviate poverty of poor rural communities,
- encourage the effective use of unexploited medicinal plants worldwide and
- increase the human defence against diseases.

AAMPS members have many skills that are important to this project, but there is limited administrative and managerial skills and to a certain extent also in contacts with other role players in Africa. Our partner, the Centre for Research Information Action in Africa Southern Africa Developing and Consulting CRIAA SA-DC (see page 4) would play a critically important role in enhancing AAMPS' managerial and administrative skills and resources.

2. Relevance:

2.1 Relevance of proposal to the needs and constraints of the target countries.

The lack of technical specifications and quality control standards for African Medicinal Plants and extracts was one of the major constraints identified at the Commonwealth/CDE Medicinal plants conference held in Cape Town, South Africa in December 2000. This discourages consideration of African medicinal plants usage if there is no trustworthy printed information on efficacy and safety available. This also makes it difficult for local or overseas buyers to compare batches of products from different places or from year to year. This is in marked contrast to other major regions of the world, e.g. China and India, where traditional formulations have been recorded and evaluated at both the local and international level.

If African herbals are to enter the formal herbal medicine market, formulation of internationally acceptable information on the identity, safety, efficacy, and quality control is *sine qua non* for the expansion of trade in this sector.

These product specifications combine some of the information usually found in scientific plant monographs (e.g. ESCOP, WHO etc.), trade specifications, quality control data and form the foundation for an African Herbal Pharmacopoeia. Information for the selected African medicinal plant species is not yet available in these scientific plant monographs.

The proposed standards will constitute reliable technical profiles and will address a void which currently exists in this market. The standards would also act as a catalyst for quality control and quality assurance programmes for African Medicinal Plants. They will form a reference base that companies which trade in these products could use to establish their own in-house specifications.

2.2 The problems to be resolved and the needs to be met.

While major efforts are underway to research, test and draft the 50 herbal profiles using consultants drawn from right across Africa and supported by advisors from the European Union, AAMPS itself suffers from lack of revenue and administrative support. In order to increase the number of members and to enhance the reputation of the organisation, a series of actions are required as listed below.

2.3 The actors (final beneficiaries, target groups) involved.

- African companies involved in the production and sale of herbal products both within Africa and as export commodities. (AAMPS members currently include around 5 such companies and there are in the order of 50 companies in Africa involved in the manufacture and sale of such products.)
- Herbal practitioners and clinics using traditional medicines or modern plant based dietary supplements. There are thousands of such clinics throughout Africa.
- Ministries of Health and associated state healthcare facilities.
- European, Asian and North American companies involved in the import, processing, distribution and use of African herbal ingredients and semi-finished products.
- Research and development centres interested in developing new products using African materials.
- Regional and international organisations involved in primary health care and in the planning and strategic management of African health programmes (WHO, OAU, etc.).

2.4 Objectives and expected results

- a) Writing and evaluating a 5 year business plan to develop a thriving and sustainable organization.
- b) Upgrading of the website to improve networking and communication and allow membership recruitment to be organised on line, publications and other information to be sold and downloaded and sponsored links to be developed.
- c) Organisation of an international meeting and exhibition to which leading stakeholders involved in quality assurance and quality control of African herbals would be invited. This meeting would be used to evaluate the business plan, to raise funds through membership, sponsorship and the sale of data.

2.5 The added value of the action.

The profiles prepared will identify areas where research is required on the selected species. This will make it easier for scientists to identify and motivate potential funding on projects which address gaps in the profiles.

AAMPS also envisages that at some stage the database will be accessible to all approved members thus establishing a living database that can continually be upgraded under supervision of the webmaster or original author of the profile.

The cultivation of medicinal plants in Africa will not only increase the quality of primary health care, but also lead to the creation of jobs and export opportunities with the associated alleviation of poverty.

3. Methodology and Sustainability:

3.1 The main project activities

A Preparing a detailed 5 year business plan outlining potential sources of revenue and expenditure and identifying the best way to achieve sustainability for AAMPS. The plan will also make recommendations on membership recruitment, administration and international promotion.

B Organising an international workshop to approve the business plan and to authenticate and promote the 50 herbal profiles currently being prepared by the association thereby increasing the revenue of AAMPS through the sale of this information or through the raising of membership fees.

C Upgrading and expanding of the association's website and the preparation of a range of promotional materials designed to increase the number of members of AAMPS and to enhance communications and a sense of identity between existing members of this organisation.

3.2 The main implementing partners, length of relationship and involvement in the project

The main implementing partner is the Centre for Research Information Action in Africa Southern Africa Developing and Consulting. CRIAA SA-DC was one of the key organisations who helped set up AAMPS. They will advise us on all aspects related to administration of AAMPS and will be a key player in organising the Workshop (see <http://www.criaasadc.org>).

University and Research organisations as well as private companies involved in the cultivation, processing and trade in herbal raw materials and products will play a role and were involved from the beginning in the establishment of AAMPS. These include:

The Phytomedicine Programme, University of Pretoria, South Africa: This programme has 5 staff, and more than 35 masters, doctoral students and post doctoral fellows. It has been identified as a developed Research Niche Area by the South African National Research Foundation. The programme has a research and consultancy budget of c €400 000 per year. They have already successfully carried out contracts for both CDE and CTA.

Dept. of Chemistry, University of Mauritius, Reduit, Mauritius: This department has already successfully carried out contracts for CDE, IPGRI, CIDA and SIDA.

Parceval Pharmaceuticals, South Africa: One of Africa's leading growers and processors of medicinal plants and plant extracts with exports exceeding €2 million per year. They have a joint venture with a leading EU pharmaceutical company and have pioneered the export of value-added herbals in Africa.

African Artemisia, Tanzania: Another major pioneer in the African herbal industry involved in growing and processing natural products for export and local market. This company has already received technical assistance from CDE over many years. Turnover exceeds €1 million per year.

Biomox Pharmaceuticals Pty Ltd, South Africa: A leading herbal pharmaceutical company in South Africa producing herbal medicines for some 65 smaller herbal medicine companies in southern Africa and also for major pharmaceutical companies like Merck Pharmaceuticals.

3.3 Achieving sustainability

AAMPS is particularly concerned about the need to develop its own sources of income and to achieve sustainability as rapidly as possible. The main ways in which the organisation earns revenue is by levying of membership fees, sale of detailed technical profiles to non-members, inspection and certification services, special publications, sponsorship of events and conference and workshop fees. The business plan which will be developed as part of this action will help refine and expand on these activities and improve AAMPS chances of sustainability.

3.4 Possible multiplier effects of project

This will provide the basis for legislation to include herbal preparations into health care programmes, it will enable local pharmaceutical companies to achieve uniform quality products, give confidence to importers of African herbals that products meet minimum quality standards, encourage local and international companies to use more Africa herbal ingredients, provide an independent African organisation that can advise government and industry on matters of safety and efficacy and encourage increased cultivation, jobs and trade in 50 of Africa's most important medicinal plants.

It is not surprising that since the publication of the Centurion Declaration in 2003, which led to the formation of AAMPS, no less than 15 magazine articles have been published and 10 conference presentations were made confirming the importance of AAMPS to the African health care and pharmaceutical industry.

4. Expertise and operational capacity:

4.1 The experience of your organisation in project management?

AAMPS is a new organisation and hence has limited experience in project management. However, its partner has extensive experience in this field [See <http://www.criaasadc.org>].

The chairman of the board of AAMPS has more than a decade of experience managing the 8 National Botanical Gardens in South Africa and the Research Directorate of the National Botanical Institute in South Africa with a staff of some 600 including more than 100 scientists. He recently wrote a business plan, managed and completed a €300,000 research project within two years. He has completed several management courses and has managed the first phase of the AAMPS project with funding from CDE and CTA successfully.

Prof Ameenah Gurib-Fakim from the University of Reduit in Mauritius is currently Deputy Provost Chancellor of the University and handles many management matters in addition to several research grants and consultancy contracts every year.

The other associates have multinational businesses which include complex technical and management tasks.

4.2 What is the experience of your organisation and your partner(s) on the issues to be addressed?

AAMPS's members were selected because they are the experts in the field of the identification, analysis, cultivation, processing, quality assurance and marketing of African medicinal plants. The members and associates of AAMPS between them represent probably the most expert group of people in the field of African medicinal plants. Their technical skills are substantial.

AAMPS members, however, lack experience in the organisation and running of pan-African trade associations. The proposed actions are designed to rectify this weakness and give AAMPS the administrative strengths it needs to effectively run its technical programmes.

If AAMPS is not properly managed and does not have sufficient funds to organize itself, it would be impossible to attain its admirable aims.

AAMPS has limited managerial and administrative skills. Our partner, the Centre for Research Information Action in Africa Southern Africa Developing and Consulting [CRIA SA-DC] (www.criaasadc.org) will play a very important role in this context. Their purpose is to support sustainable and democratic development through:

- Strengthening the capacities of national, regional and local operating bodies including government departments, local authorities, non-governmental organisations and producers' organisations in the private sector (including co-operatives)
- Contributing to the capacity of marginalised communities or members of society to improve their livelihoods.
- CRIA SA-DC in Namibia undertakes applied research and consultancies in programme and project appraisal, monitoring, evaluation and management in the following sectors:
 - Agricultural and rural development, post-harvest research and development of botanical resources linking producers and markets
 - Primary producers' issues - from natural resource management to sustainable utilization
 - Informal sector, small-scale industry, technology and skills development
 - Producers' organisation capacity building and co-operative development

The last three items indicate that their expertise is closely related to AAMPS objectives. This is why they were also represented at the meeting when AAMPS was conceived (www.aamps.org).

From their website (www.criaasadc.org) it can be seen that CRIA SA-DC has many collaborators all over the world and that they have obtained funding from many international funding agencies. Their experience in helping manage an organisation like AAMPS will be invaluable.

FULL APPLICATION FORM

I. THE ACTION

1. DESCRIPTION

1.1 Title

Institutional strengthening of the Association for African Medicinal Plant Standards

1.2 Location(s)

Africa-wide especially Botswana, Ethiopia, Ghana, Kenya, Madagascar, Mali, Mauritius, Namibia, Nigeria, South Africa, Tanzania and Uganda.

1.3 Cost of the action and amount requested from the Contracting Authority

Total eligible cost of the action	Amount requested from ProInvest	% of total eligible cost of action
EUR 124,931.52	EUR 83,704.12	67%

1.4 Summary

Duration of the action	10 months
Objectives of the action	<p>Overall objective(s) This proposed action is a capacity building exercise designed to strengthen the financial, administrative and technical skills of AAMPS to assist to carry out its main function which is to select, prepare, edit, publish and disseminate quality assurance standards for medicinal plants and herbal medicines and to develop support services to ensure that these standards are used nationally, regionally and internationally.</p> <p>Specific objective To prepare a business plan, an interactive web site and to finalise the publication of trading standards for 50 of Africa's leading herbals to provide the foundation for the sustainable development of this Africa wide specialist trade association.</p>
Partner(s)	Centre for Research, Information, Action in Africa: Southern Africa Development and Consulting (CRIAA SA-DC), Windhoek, Namibia
Target group(s)	Regulators, manufacturers, researchers into African medicinal plants
Final beneficiaries	Growers, traders, healers and consumers of herbal medicines
Estimated results	The widespread dissemination of the first Africa-wide set of medicinal plant trading standards, the strengthening of management and finance
Main activities	<p>The proposed action includes</p> <p>A Preparing a detailed 5 year business plan outlining strategic planning, focussing on potential sources of revenue, financial sustainability for AAMPS, recommendations on membership recruitment, administration and international promotion.</p> <p>B Organising an international workshop to discuss and approve the business plan and to authenticate and promote the 50 herbal profiles presently being prepared by AAMPS in order to increase the revenue of AAMPS either through the sale of this information or through the raising of membership fees.</p>

	<p>C Upgrading and expansion of the AAMPS web site and the preparation of a range of promotional materials designed to increase the number of members of AAMPS and to enhance communications and encourage a sense of identity between existing members of this organisation.</p> <p>D Investigate other opportunities of fundraising e.g. by a royalty paid by subcontractors for quality control or research projects commissioned by Industry and allocated to subcontractors by AAMPS. AAMPS is registered in Mauritius and holds the intellectual property rights to all the documentation prepared under its auspices. This action will complement interventions already supported by CDE and CTA, which have helped finance the selection, research, laboratory testing and preparation of the final drafts for the 50 most important African medicinal plant species standards which will be completed by the end of the first half of 2007.</p> <p>Through an efficient AAMPS, this project would encourage the trade in African medicinal plants across international borders, lead to substantial value addition of medicinal plants, create jobs for people collecting or growing medicinal plants, alleviate poverty of poor rural communities, encourage the effective use of unexploited medicinal plants worldwide and increase the human armoury against diseases.</p>
--	---

1.5 Objectives

This proposed action is a capacity-building exercise designed to strengthen the financial, administrative and technical skills of the association to carry out its main function, which is to select, prepare, edit, publish and disseminate quality assurance standards for medicinal plants and herbal medicines and to develop support services to ensure that these standards are used nationally, regionally and internationally.

Without the development and promotion of such standards, the development of safe and efficacious herbal drugs and dietary supplements for national, regional and international sale will not be possible. Africa presently accounts for less than 5% of the turnover of this multibillion dollar industry but accounts for some 30% of the world's plant biodiversity.

AAMPS already has members from all across Africa as well as from Europe, Asia and North America. In order to expand its membership network and enhance its revenue, it urgently needs to strengthen its capacity to recruit members and raise other forms of income so that the organisation can become self-sustaining.

1.6 Justification

The ProInvest BDS programme has as its purpose the promotion, on a regional basis, of sustainable and environmentally friendly investment and inter-enterprise co-operation agreements (I&ICAs) in key sectors to increase the competitiveness of the ACP economies.

The AAMPS programme fits ideally into this concept as it aims to provide:

1. Employment opportunities for those in the collection, processing and exporting of herbals
2. Export revenue for those cultivating, collecting and distributing herbals
3. Improved health and welfare to consumers of herbal medicines (safety and efficacy)
4. Income generation for those growing, manufacturing & selling herbal products
5. Regional pan African co-operation in a sector where there is hardly any co-operation
6. Greater effectiveness for Africa's only trade association devoted to quality assurance of African herbal products
7. Greater harmonisation of African trading standards in the field of herbal extracts and phyto-medicines
8. Improved access to EU and other international markets through the development of internationally recognised trading and quality control standards

1.6.1 Identification of perceived needs and constraints in the target countries, in particular in the region(s) concerned.

One of the major constraints identified at the 2001 Commonwealth/CDE medicinal plants conference held in Cape Town was the lack of suitable technical profiles and quality control standards for African medicinal plants and extracts. This makes it extremely difficult for buyers, whether local or overseas, to compare batches of product from different places or from year to year. This is in marked contrast with other major regions of the world like China and the Indian subcontinent where traditional formulations have been recorded and evaluated both at local and national level. Consequently the level of world trade in Indian and Chinese medicinal plants and extracts is far more extensive than those of the African region.

Furthermore, without some well-documented information on the safety, efficacy and phytochemical characteristics of different compounds it is difficult for external buyers to make any accurate assessment of the likely utility or value of some new raw materials and extracts of African origin.

1.6.2 Description of the target group(s) and final beneficiaries and estimated number

- AAMPS existing members: 20
- AAMPS potential members: approximately 300
- Regulatory and official organisation involved in quality assurance for herbals: 500
- Scientists and researchers working on African medicinal plants and herbal medicine: 5000
- African herbal product manufacturers and traders: 2000
- European importers and formulators of African herbal products: 200
- African traditional healers: 100000

1.6.3 Reasons for the selection of the target group(s) and identification of their needs and constraints. How does the Action contribute to the needs of the target group(s) and final beneficiaries?

The formation of AAMPS was a spontaneous action of a group of Africa's leading experts in the field of medicinal plants and herbal medicines' who met in Centurion in 2005 and prepared the Centurion Declaration which provides the "manifesto" for the organisation:

We the undersigned, with a view to improving the health, welfare and livelihood of the people's of Africa, hereby declare:

- To establish an Association with a registered office in Mauritius to support the African herbal industry and regulatory authorities by developing quality control and quality assurance standards for African medicinal plants and herbal medicines.
- To offer membership of the newly formed association to any individual or organisations dedicated to the establishment of such standards and to the creation of an African Herbal Pharmacopoeia
- To jointly review and promote the 23 African herbal profiles presently being prepared under the leadership of the Phytomedicine Programme, University of Pretoria. These herbal profiles include plants of African origin which are considered of regional and international importance that can be sustainably sourced in Africa.
- To raise funds to prepare and disseminate a further 30 African herbal profiles selected by the founding members of the association at the Centurion Lake Hotel review meeting on May 2005.
- To prepare and publish an African Herbal Pharmacopoeia based upon the c. 50 herbal profiles and to promote its use nationally and internationally
- To help obtain international validation for these herbal standards and the subsequent herbal pharmacopoeia and to lobby health authorities throughout Africa to use such standards as the basis for licensing safe and effective herbal medicines in Africa
- To promote capacity building in Africa for the establishment of regional training centres for certification, compliance and quality control of herbal medicines.
- To promote the safe, sustainable national and international trade in the 50 profiled African medicinal plants
- To carry out any other activities deemed by the members of the association as required to further its objectives.

1.7 Detailed description of activities

A Publication of the final 50 herbal profiles designed to help companies and organisations grow, process and prepare products according to the AAMPS standards (GAP, GMPs etc.). Some materials will be made available in electronic format only, others will be printed and available electronically.

This unique collection of quality assurance standards will be the baseline product for all other services and activities of AAMPS. Once these standards are prepared, AAMPS will aim to develop these into a truly African Herbal Pharmacopoeia which can form the basis of drug legislation throughout the region.

This work will be undertaken by AAMPS' own editorial committee.

B Upgrading and expansion of the association website (see www.aamps.net) and the preparation of a range of promotional materials designed to increase the number of members of AAMPS and to enhance communications and a sense of identity between existing members of this organisation. A basic website has already been prepared by AAMPS to alert members and potential members to the existence of this new association. If this proposal is approved, AAMPS aims to substantially upgrade the website so as to make it the main "shop window" for the organisation and moreover, a platform where members can interact with each other.

The public access part of the website will include all the information and forms necessary to join AAMPS. It will include some public access information on the organisation and simple presentations of each of the 50 herbal profiles prepared.

There will be a further area for sponsored products and services and items for sale.

The membership only area will be accessed by a password. This will enable members to download the full set of standards and any updates, provide a discussion area where members can interact as well as a bulletin board and newsletter.

This work will be done by a specialist website developer working closely with AAMPS management team.

C Preparation of a detailed 5 year business plan, outlining potential sources of revenue and expenditure and identifying the best way to achieve sustainability for AAMPS. The plan will also make recommendations on membership recruitment, administration and international promotion.

It is critical that AAMPS becomes a self-sustaining organisation within 2 years. The members are confident that this can be done if a well-structured business plan is prepared which provides the road map for the organisation for the next 5 years.

AAMPS has many advantages over other organisations in this respect because:

- It is a very specialised and focused organisation concentrating on the selection, preparation, dissemination, enforcement of quality control standards and the support training and promotion services needed to implement such standards.
- Apart from membership income AAMPS intends to have a wide range of saleable services for members as well as non members. These include a) sale of standards, b) certification and authentication services, c) specialist consultancy services, d) training workshops on enforcement of standards, e) laboratory testing and analysis, f) herbal photo library, g) text books.

The business plan specialist who will advise AAMPS on the business plan has a great deal of experience in setting up and running trade associations as well as extensive knowledge of project management in Africa. This plan will be prepared by a consultant working closely with the AAMPS management as well as CRIAA SA-DC. Our lead partner CRIAA SA-DC, an association of consultants and specialist companies working in the environmental and natural product field, also has an excellent background in this area. The consultant will visit or consult with AAMPS Board members prior to preparing this plan.

D Organising an international workshop in Windhoek, the headquarters of our main partner. CRIAA SA-DC will draw upon their widespread expertise in the management of both training and promotional workshops and international conferences. The workshop will have six main functions:

- To authenticate and promote the 50 herbal profiles currently being prepared by the association.

- To evaluate and approve the proposed business plan to allow finalisation for the subsequent membership drive and marketing campaign in 2008.
- To evaluate and approve the revised website and electronic communications system.
- To allocate tasks and responsibilities and approve any structural and organisational changes recommended in the business plan.
- To evaluate and approve the final profile drafts and to begin to disseminate them electronically and by other means.
- To draw world-wide attention to achievements of AAMPS, gain recognition by COMESA, ECOWAS and international WHO, WTO advisory bodies in the field of standards.
- To discuss any possible changes to AAMPS constitution if required by the 5 year business plan.

The organization will be the prime responsibility of CRIAA SA-DC our partners. They have extensive experience of holding both national and international conferences and workshops and staff who can handle the logistical issues.

1.8 Methodology

1.8.1 *Methods of implementation and reasons for the proposed methodology*

- Commission experts, consult on business plan, prepare draft business plan
- Draft TOR for revamp of website, revamp of website
- Draft TOR for review & edit of profiles, edit and review final profile drafts, visit key regional AAMPS research centres, crosscheck laboratory analysis
- Prepare consultation workshop, hold workshop
- Prepare workshop accounts, compile interim report to Pro-€invest
- Revise & finalise business plan
- Prepare and print final profiles, launch profiles and other data on website
- Prepare final accounts, prepare final report
- Build up membership drive, develop accreditation service
- Sell profiles, update living data base, upgrade profiles to legal status
- Hold GMP/GAP training workshops
- Hold laboratory analysis training workshops

1.8.2 *Not applicable*

1.8.3 *Where the action is the prolongation of a previous action, explain how the action is intended to build on the results of this previous action*

AAMPS has already been a recipient of both CDE and CTA funding to select, research, review and prepare the first 21 herbal profiles during 2004/2005. Moreover, CDE has approved funds for the research and preparation of the remaining c. 30 profiles. The Pro-€invest project, while not concerned with the research and preparation of the remaining profiles, will directly support these earlier initiatives by providing the resources required to review, print and publish these materials and a framework to disseminate the results worldwide.

1.8.4 *Where the action is part of a larger programme, explain how it fits or is coordinated with this programme. Please specify the potential synergies with other initiatives, in particular from the EC*

Once the Pro-€invest project is completed AAMPS will be able to embark on a range of coordinated initiatives designed to

- gain international recognition for their standards,
- assist companies and regional support organisations achieve these standards
- expand and broaden these standards so they can become a true African Pharmacopoeia

1.8.5 *Procedures for follow up and internal/external evaluation*

The aim of the business plan, website and finished profiles is to provide the successful foundation and tools needed to recruit members, sell products and obtain other forms of financial support. A major programme to promote AAMPS will begin once the Pro-€invest project is completed (see Action plan). We have budgeted for an external financial audit of the project.

The workshop itself will be a review meeting where many AAMPS members and other experts will review the business plan, draft profiles and electronic database and advise on how it can be upgraded and improved.

1.8.6 Description of the role and participation in the action of the various actors (local partner, target groups, local authorities, etc.), and the reasons for which these roles have been assigned to them.

AAMPS management board, especially the Chairman and the Treasurer, will together be the main coordinators of this project. They will recruit and monitor consultants, supervise the editing and publication of the profiles and visit the members and the key support organisations to ensure that AAMPS builds a strong Africa-wide framework for the future.

AAMPS members and associates are already involved in the preparation of the draft profiles and the dissemination of the AAMPS philosophy. Once again, they will be expected to act as an editorial board for the new materials and five of them will be selected as specialist speakers at the Windhoek evaluation workshop.

AAMPS short term consultants will be specialists in the field of African medicinal plants who know the aims and objectives of AAMPS. All contracts are for less than 15 days, see list of team members.

CRIAA SA-DC management board and staff will play an important role in the project by taking primary responsibility for organisation of the evaluation workshop. They will also assist AAMPS on all matters of accounting and management of the project, lending it their long years of experience of handling overseas aid funds.

AAMPS already has strong links with many **major research and development organisations**, such as the University of Pretoria, the University of Mauritius and the University of Antwerp. These organisations will all be providing technical support to the project and play a vital role in increasing the credibility of AAMPS worldwide.

1.8.7 Team proposed for implementation of the action (by function: there is no need to include the names of individuals here)

Team	Experience	Man days
AAMPS / ProInvest Project Coordinator – To coordinate all aspects of the project and to liaise with ProInvest and all other official bodies involved in project.	Extensive project management experience	28 (AAMPS budget contribution)
AAMPS Treasurer – to keep track of all financial matters relating to this project and prepare necessary financial accounts – liaise with auditors.	Basic bookkeeping/accounts	21 (AAMPS budget contribution)
AAMPS Project Secretary	Administrative, logistical and secretarial skills	42 (AAMPS budget contribution)
CRIAA SA-DC Management Board Executive Committee (ExCo) members – As main partner in the project to assist AAMPS in all aspects of the project especially the planning and organisation of the workshop.	Extensive project management experience	28 (CRIAA budget contribution)
CRIAA SA-DC administrative & finance manager – To assist CRIAA SA-DC and AAMPS coordinator with all aspects of the project financial administration and particularly to those related to hosting of the workshop.	Experience of financial administration and organising international workshops and seminars	42 (CRIAA budget contribution)
Business Plan expert – will review existing operations of AAMPS and prepare a viable 3 year business plan including all aspects of fundraising and income generation, present the plan at workshop and incorporate member feedback.	Trade association Natural Product Industry African Plant research Fund raising and promotion	12 (Contractors)
IT specialist – upgrades existing web site to include password access, newsletter and advertising facilities and ecommerce opportunities.	Web site development Ecommerce Natural product industry	15 (Contractors)

Uploads all the herbal profiles so the site can become a living database of African herbals.		
Plant Chemist – will review all the samples submitted as part of the trade specification draft documents and assess the quality and authenticity of the samples provided.	Phytochemistry Laboratory analysis Botanical identification	15 (Contractors)
West African Anglophone speaker – prepare presentation on status of herbal quality assurance standards in region.	Knowledge of herbal drugs regulations and standards	3 (Contractors)
West African Francophone speaker – ditto.	ditto	3 (Contractors)
East African speaker – ditto.	ditto	3 (Contractors)
Southern Africa Speaker – ditto.	ditto	3 (Contractors)
EU speaker – ditto.	ditto	3 (Contractors)

1.8.8 Main means proposed for implementation of the action (equipment, tools...)

The only specialist equipment required to complete the action will be analytical laboratory equipment in order to crosscheck the results* provided in the draft final profiles. Access to specialist library facilities may also be needed. Both are being provided by the University of Pretoria or other associated AAMPS facilities as a contribution in kind.

* Note that this intervention does not involve detailed biochemical analysis but the crosschecking of results prepared as part of previous research work not funded under the AAMPS Pro-€invest intervention.

1.9 Duration and action plan

The duration of the action will be 10 months. Planned activities (in months):

Activity	1	2	3	4	5	6	7	8	9	10	Implementing body
Commission Experts	■										AAMPS
Consultations on Business plan		■	■								AAMPS
Preparation of draft business plan				■	■	■					AAMPS
Draft TOR for revamp of website	■										AAMPS
Revamp of website		■	■	■	■						AAMPS
Draft TOR for review & edit of profiles	■										AAMPS
Visit key regional AAMPS research centres				■	■	■					AAMPS
Edit and review final profile drafts		■	■	■	■						AAMPS
Crosscheck laboratory analysis			■	■	■						AAMPS
Preparation of consultation workshop			■	■	■						CRIAA SA-DC
Holding of workshop						■					CRIAA SA-DC
Preparation of workshop accounts							■				CRIAA SA-DC
Interim report to Pro-€invest							■				AAMPS
Revise & finalise business plan								■	■		AAMPS Consultants
Prepare and print final profiles								■	■	■	AAMPS
Launch profiles and other data on website								■	■	■	AAMPS
Prepare final accounts									■		CRIAA/AAMPS
Prepare final report									■	■	CRIAA/AAMPS

Activities planned for the following 5 years (in semesters):

Activity	3	4	5	6	7	8	9	10	Implementing body
Membership drive	■	■	■	■					AAMPS
Sales of profiles		■	■	■	■				AAMPS
Develop accreditation service		■	■	■	■	■	■	■	AAMPS/CRIAA
Updating of living data base		■	■	■	■	■	■	■	AAMPS/other specialist agencies
GMP/GAP training workshops		■	■	■	■	■	■	■	AAMPS/CRIAA/UNIDO/ICS
Lab analysis training workshops		■	■	■	■	■	■	■	AAMPS/UNIDO/ICS
Upgrading of profiles to legal status		■	■	■	■	■	■	■	AAMPS, WHO, national regulators

2. EXPECTED RESULTS

2.1 Expected impact on target groups/beneficiaries

2.1.1 the situation of target groups/beneficiaries

The first set of accurate, up-to-date and comprehensive quality control standards will be made available not just to AAMPS members but also manufacturers, healers, traders, research staff involved with African medicinal plants and herbal medicine worldwide.

2.1.2 the technical and management capacities of target groups and/or any partners where applicable.

AAMPS will be much better equipped to serve its members and to generate its own sustainable income flow once this project has been completed. The business plan will form the road map for the next 2 years of the work for AAMPS. The review meeting will help bring together people from all over Africa who otherwise do not get an opportunity to develop common strategies for the African herbal industry.

2.2 Concrete outputs

- Publication of 50 herbal profiles / trading standards of the top African herbals
- Completion of an interactive living data base of these and other plants
- Completion of an upgrade of the Association web site as the main shop window for AAMPS
- Completion of 5 year action orientated business plan which will act as the road map for AAMPS

2.3 Multiplier effects

This project has excellent opportunities for replication, by

- a) expanding the number of herbal profiles prepared (there are at least 400 key species in Africa),
- b) beginning to prepare standards for multi herb formulations and other finished products,
- c) organising a series of regional training workshop to help companies and organisation reach the required standards,
- d) building an Africa-wide network of herbal testing services drawing upon the very best of Africa's scientific expertise in this field,
- e) preparing the first African Herbal Pharmacopoeia,
- f) undertaking a continent-wide lobbying programme to get herbal products based upon these safety standards incorporated into the primary health care systems of African countries,
- g) organising international conferences to promote African herbals throughout the world.

2.4 Sustainability

2.4.1 The financial aspect (how will activities be financed when the grant ends?)

The business plan, which will be prepared as part of this proposal, will review this issue in depth. Meanwhile the main areas for financial sustainability for AAMPS are

- 1) Membership fees
- 2) Sale of profiles and other technical information to non members
- 3) Sale of certification and product-testing services

- 4) Specialist consultancy services in Good Agricultural Practices (GAP), Good Manufacturing Practices (GMP) and Good Laboratory Practices (GLP) for herbals and phytopharmaceuticals
- 5) Organising of specialist international conferences and sale of conference proceedings on quality assurance and related matters
- 6) Sale of consumer products like medicinal plant calendars, photographs, illustrated booklets
- 7) Grants from agencies such as CDE, Gates Foundation, UNIDO, National Governments

2.4.2 *Institutional level (Will structures allowing the activities to continue be in place at the end of the action? Will there be local "ownership" of action outcomes?)*

Although AAMPS is a new organisation, its membership consists of some of Africa's most experienced scientists and businessmen in the field of natural medicine. With the help of this grant and our very experienced partners CRIAA SA-DC we aim to "weld" AAMPS into a truly Africa wide association with real international "clout" and influence. (Our model is similar to that of ESCOP – European Scientific Cooperative on Phytotherapy (<http://www.escop.com/>) which has now become seen by the EU and national governments as the definitive source of knowledge and advice on the safety and efficacy of herbal products)

2.4.3 *Policy level where applicable (What structural impact will the action have - e.g. will it lead to improved legislation, codes of conduct, methods, etc?)*

AAMPS has a specific remit to change national and regional policy in the sphere of herbals and natural medicine. It aims to provide the scientific information needed by government and international agencies to make clear judgements about the pros and cons of herbal medicine. It will encourage integration of herbal medicine and traditional healing into the health system. Currently, despite the fact that 90% of Africans rely on herbal medicine, governments in only a handful of African countries give official recognition and support to this sector. AAMPS aims to change this.

2.5 Logical framework

not required as budget is under 100,000 euros

3. BUDGET FOR THE ACTION

N°	Type of costs	Unit	Unit cost (Euros)	Quant.	Total cost
1	HUMAN RESOURCES				
1.1	Contracted expert Fees				16.770,00
1.1.1	Business Plan expert	Man/day	410,00	12,00	4.920,00
1.1.2	IT specialist	Man/Day	320,00	15,00	4.800,00
1.1.3	Analytical chemist/Laboratory specialist	Man/day	320,00	15,00	4.800,00
1.1.4	West Africa speaker - anglophone	Man/day	150,00	3,00	450,00
1.1.5	West Africa speaker - francophone	Man/day	150,00	3,00	450,00
1.1.6	East African speaker - anglophone	Man/day	150,00	3,00	450,00
1.1.7	Southern African speaker - anglophone	Man/day	150,00	3,00	450,00
1.1.8	European speaker - regulatory affairs	Man/day	150,00	3,00	450,00
1.2	Full cost estimate for beneficiary's staff allocated to the project				31.325,00
1.2.1	Chairman	Man/day	375,00	28,00	10.500,00
1.2.2	Treasurer	Man/day	375,00	21,00	7.875,00
1.2.3	Secretary	Man/day	75,00	42,00	3.150,00
1.2.4	CRIAA SA-DC Management Board Executive Committee (ExCo) members	Man/day	350,00	28,00	9.800,00
1.2.5	CRIAA SA-DC Administrative and Financial Manager	Man/Day	75,00	42,00	3.150,00
1.3	ACP Participants' contribution				2.400,00
	4 participants x 3 days	Man/day	200,00	12,00	2.400,00
	TOTAL 1				50.495,00
2	PER DIEMS AND OTHER FIXED COSTS				
2.1	Per diem for external experts				2.754,00
2.1.1	Country : Mauritius	day	201,00	4,00	804,00
2.1.2	Country : South Africa	day	150,00	5,00	750,00

2.1.3	Country : Windhoek 3 days x 5 speakers	day	80,00	15,00	1.200,00
2.2.	Per diem for organisers (beneficiary and partners)				4.172,00
2.2.1	Country : Ghana	day	167,00	2,00	334,00
2.2.2	Country : South Africa	day	150,00	10,00	1.500,00
2.2.3	Country : Namibia 2 people	day	80,00	10,00	800,00
2.2.4	Country : Mauritius	day	201,00	2,00	402,00
2.2.5	Country : Mali	day	236,00	2,00	472,00
2.2.6	Country : Kenia	day	166,00	4,00	664,00
2.3	Per diem ACP Participants (IOs only) 4 people	day	80,00	12,00	960,00
2.4	Telecommunications and mail - 2 offices	sum/month	250,00	10,00	2.500,00
2.5	Office supplies and consumables - 2 offices	sum/month	150,00	10,00	1.500,00
	TOTAL 2				11.886,00
3	REIMBURSABLE COSTS				
3.1	Transport costs for external experts				10.450,00
3.1.1	London-Mauritius-London - 1 ticket business plan expert	trip	1.000,00	1,00	1.000,00
3.1.2	London-Johannesburg-Windhoek-London - 2 tickets business plan	trip	1.400,00	2,00	2.800,00
3.1.3	West Africa speaker - anglophone	trip	1.500,00	1,00	1.500,00
3.1.4	West Africa speaker - francophone	trip	1.500,00	1,00	1.500,00
3.1.5	East African speaker - anglophone	trip	1.500,00	1,00	1.500,00
3.1.6	Southern African speaker - anglophone	trip	750,00	1,00	750,00
3.1.7	European speaker - regulatory affairs	trip	1.400,00	1,00	1.400,00
3.2	Transport costs for organisers (beneficiary and partners)				7.000,00
3.2.1	Johannesburg-Windhoek-Johannesburg	trip	250,00	6,00	1.500,00
3.2.2	Berlin-Johannesburg-Windhoek-Berlin	trip	1.400,00	2,00	2.800,00
3.2.3	Johannesburg-Accra-Bamako-Johannesburg	trip	1.500,00	1,00	1.500,00
3.2.4	Johannesburg-Mauritius-Johannesburg	trip	600,00	2,00	1.200,00
3.3	Transport costs for participants from invited IOs + Public Authorities				4.800,00
3.3.1	Bamako-Windhoek-Bamako - 1 person	trip	1.600,00	1,00	1.600,00
3.3.2	Johannesburg-Windhoek-Johannesburg - 2 people	trip	250,00	2,00	500,00
3.3.3	Kampala-Jbrg-Windhoek-Kampala	trip	1.200,00	1,00	1.200,00
3.3.4	Abuja-Windhoek-Abuja - 1 person	trip	1.500,00	1,00	1.500,00
3.4	Transport costs for participants from invited enterprises				0,00
3.5	Organisation costs				25.665,00
3.5.1	Documents, leaflets, reports: editing, layout and print of 50 herbal profiles		300,00	50,00	15.000,00
3.5.2	Internet site, CD-Roms, rebuild and upgrade to ecommerce operation		2.875,00	1,00	2.875,00
3.5.3	Room hire, furnishing, posters, catering, rental of workshop space		2.000,00	1,00	2.000,00
3.5.4	Equipment rental, local transport organised for participants during event		750,00	1,00	750,00
3.5.5	Temporary personnel (translators, interpreters, secretaries, hushers,...)		90,00	56,00	5.040,00
	TOTAL 3				47.915,00
4	OTHER COSTS				
4.1	Auditing fees		1.000,00	1,00	1.000,00
4.2	Financial costs (bank charges)		250,00	1,00	250,00
4.3	Other : (please specify) B ook keeping				
	TOTAL 4				1.250,00
	SUBTOTAL DIRECT PROJECT COSTS				111.546,00
5	OVERHEADS				
5.1	fixed percentage (maximum 7%) of total direct eligible costs (items 1-4)	%	7,0%	111.546,00	7.808,22
6	CONTINGENCIES(*)				
6.1	fixed percentage (maximum 5%) of total direct eligible costs (items 1-4)	%	5,0%	111.546,00	5.577,30
	TOTAL COSTS				124.931,52

4. EXPECTED SOURCES OF FUNDING

	SOURCE OF FUNDING	Amount in Euro	% of total
	Beneficiary and partners contribution	33.725,00	26,99%
	Essential Nutrition UK	3.750,00	3,00%
	Parceval Pharmaceuticals	3.752,40	3,00%
	PROINVEST contribution sought (max 67 % of total cost)	83.704,12	67,00%
	TOTAL	124.931,52	100%

In-kind contributions

This project could not be completed without access to the following resources, which are being provided by AAMPS and CRIAA SA-DC members free of cost

- Library facilities
- Unpublished research data
- Collection and provision of botanical specimens
- Specialist analytical equipment
- Administrative support financed by own organization
- Knowledge and expertise gained over many decades

II. THE APPLICANT

1. IDENTITY

Full legal name :	Association for African Medicinal Plants Standards
Acronym :	AAMPS
Legal Entity Sheet number	Not applicable
Nationality:	Mauritian
Legal status	Trade association, Co. Ltd.
Official address:	c/o University of Mauritius, Reduit, Mauritius
Postal address:	c/o University of Mauritius, Reduit, Mauritius
Telephone number:	+230-4541041, ext. 1470
Fax number:	+230-4549642
E-mail of the Organisation:	info@aamps.org
Website of the Organisation:	www.aamps.org
Contact person for this action :	Prof. Kobus Eloff
Contact person's email address :	kobus.eloff@up.ac.za

2. BANK DETAILS

AAMPS Co. Ltd,
 State Bank of Mauritius,
 Reduit Branch, Reduit, Mauritius
 Swift: STCBMUMU
 Account # 62030100095508

AAMPS
 Hypovereinsbank
 Berlin, Germany
 Swift: HYVEDEMM488
 IBAN DE5210020890601993848
 Account # 601993848

3. DESCRIPTION OF APPLICANT

3.1 When was your organisation founded and when did it start its activities?

AAMPS was established with the signing of the Centurion declaration in May 2005. The Association CRIAA SA-DC was founded in 1996 and started its activities in Namibia in 1997.

3.2 What are the main activities of your organisation at present?

- Compilation of information on African medicinal plants
- Compilation of information on growers, traders and processors/manufacturers of African herbs
- Compilation of information on African regulatory systems
- Compilation of plant profiles and dissemination of this information
- Membership drive
- Development of quality test standards/methods
- Preparation of certification standards

CRIAA SA-DC undertakes in Namibia and in the SADC Region project management, applied research and consultancies in the following sectors:

- Agricultural and Rural Development, Post-Harvest Research and Development

- Natural Products Commercialisation
- Primary Producers' Issues - from Natural Resource Management to Sustainable Utilisation
- Small-Scale Industry, Technology and Skills Development
- Producers' Organisation Capacity Building and Co-operative Development

3.3 List of the management board / committee of your organisation

AAMPS

Name	Profession	Nationality	Position	Years on the board
Mr. Kobus Eloff	University Professor	RSA	Chairman	1.5
Mr. Thomas Brendler	Consultant	GER	Secretary/Treasurer	1.5
Mrs. Amenah Gurib-Fakim	University Professor	MRU	Director	1.5
Mr. Ben-Erik van Wyk	University Professor	RSA	Director	1.5
Mr. Ermias Dagne	University Professor	ETH	Director	1.5
Mrs. Marian Addy	University Professor	GHA	Director	0.5
Mr. Victor Attafua	Trader	GHA	Alternate Director	0.5
Mr. Ulrich Feiter	Manufacturer	RSA	Alternate Director	0.5

CRIAA SA-DC

Name	Profession	Nationality	Position	Years on the board
Mr Michel Mallet	Agricultural engineer	FRA	Executive Director	9
Mr David Cole	Sociologist	RSA	Deputy Executive Director	6
Mrs Josiane Leclercq	Entrepreneur	FRA		9
Ms Selma El Obeid	Agronomist	FRA		5
Ms Saskia Den Adel	Social Anthropologist	NED		4
Ms Jennifer Gatsi	Gender Programme Co-ordinator	ZBW		2
Mr Benoit Allanic	Urban Planner	FRA		9
Mr Roger Gamond	Technologist	FRA		5

4. CAPACITY TO MANAGE AND IMPLEMENT ACTIONS

4.1. Experience of similar actions

4.1.1 the object and location of the action

Preparation of first set of herbal profiles from South, Western and Eastern Africa

4.1.2 the results of the action

The final draft standards were prepared and evaluated by an international editorial committee, which met in South Africa to review the materials also launching of first basic web site

4.1.3 your organisation's role (lead manager or partner) and its degree of involvement in the action

Key AAMPS members including the University of Mauritius, University of Johannesburg,, BCDP, Nigeria, CRIAA SA-DC, Centre for Herbal Medicine in Mali were PARTNERS to this action which was undertaken by the Phytomedicine Programme, University of Pretoria seat of Chairman of AAMPS.

4.1.4 the cost of the action

Approximately €1,000 excluding contributions in kind.

4.1.5 donors to the action (name, amount contributed)

- University of Pretoria €7,500 euros (in kind)
- Essential Nutrition €5,000 euros
- Parceval Pharmaceuticals €5,000 euros

Please note CDE and CTA funded the main partner

CDE funded the Phytomedicine Programme, University of Pretoria with a grant of c. €41,000 euros

CTA funded the Phytomedicine Programme, University of Pretoria with a grant of c. €20,000 euros

4.2. Resources

4.2.1 Annual income over the last three years, mentioning where applicable for each year, the names of the main financial backers and the proportion of annual income each has contributed

AAMPS

The first financial year not completed, so no accounts or audit can be presented. Main sources of income are CDE/CTA funding, funds sponsored by commercial members and membership fees.

Estimated annual income for 2005/2006 is Euros 109,500 including

- CDE grant 85,000 euros (to be released)
- Membership Fees paid and expected 4.500 Euros
- Industry Sponsorship 10,000 euros
- Consultancy fees expected 10,000 euros

4.2.2 Financial data. Please provide the following information on the basis of the profit and loss account and balance sheet of your organisation

AAMPS

See 4.2.1

CRIAA SA-DC

Financial Year (Jan.- Dec.)	Turnover or equivalent	Net earnings or equivalent	Total balance sheet or budget	Shareholders' equity or equivalent	Medium and long-term debt	Short-term debt (< 1 year)
2005	Euros 609,804	Euros 9,100	Euros 236,666	N/A	None	None
2004	Euros 619,100	Euros 8,138	Euros 204,218	N/A	None	None
2003	Euros 731,682	Euros 86,521	Euros 218,354	N/A	None	None

CRIAA SA-DC

Year	Main financial backers	% of annual income
2005:		
	OXFAMs in Namibia	12
	NASSP & NR International (8 ACP NAM 023)	11
	Namibian Agronomic Board –NAB (MAWF funds)	10
	Commercial partners through PhytoTrade Africa	18
2004:		
	NAB (MAWRD funds)	16
	PhytoTrade Africa	15
	OXFAMs in Namibia	8
	French Cooperation	6
2003:		
	NAB (MAWRD funds)	18
	PhytoTrade Africa	16
	OXFAMs in Namibia	14
	International Commercial buyer	5

MAWF: Ministry of Agriculture, Water & Forestry (Namibia), previously Ministry of Agriculture, Water & Rural Development (MAWRD)

Any guarantees granted by third parties: **None**

Any other factors demonstrating financial viability and any risks or uncertainties about implementation: **Nothing that is not in our audited financial statements**

Furthermore, where the grant requested exceeds EUR 300 000 please provide the references of the external audit report established by an approved auditor. This obligation does not apply to international organisations nor to public bodies:

Saunderson Theron & Partners, 30 Lister Street, PO Box 24305, Windhoek, Namibia
Tel. +264 61 228858, Fax: +264 61 246306, e-mail: saunderson@acsec.com.na

4.2.3 *The number of full-time and part-time staff by category (e.g. number of project managers, accountants, etc), indicating their place of employment*

AAMPS

Category	Full-time	Part-time	Place of employment
Secretary	1		Pretoria
Chairman		1	Pretoria
Treasurer		1	Berlin
Technical/Scientific Directors		4	Johannesburg, Addis Ababa, Accra, Mauritius
Commercial Directors		2	Wellington, Accra

CRIAA SA-DC

Category	Full-time	Part-time	Place of employment
Project managers	5	1	Windhoek
Accounting & administrative staff	3	1	Windhoek
Field officers	1	1	Omaheke region
Volunteers	2	-	Windhoek (1 at NBRI)
Technical staff	3	-	Katutura
Total :	14	3	

4.2.4 *Equipment and offices*

AAMPS

Various offices of board and association members

Data base of key medicinal plants

Voucher specimens and other research data

Lab/research facilities in RSA, Ethiopia, Mauritius, Ghana, Mali, Botswana, UK, etc.

Access to manufacturing facilities in RSA, Kenya, Ghana, UK

CRIAA SA-DC

Land & buildings: Euros 80,962 (N\$ 756 k)

Plant & equipment: Euros 5,140 (N\$ 48 k)

Furniture & fittings: Euros 7,924 (N\$ 74 k)

Vehicles: Euros 88,362 (N\$ 825 k)

Field machinery & equipment: Euros 8,247 (N\$ 77 k)

Electronic equipment: Euros 40,057 (N\$ 374 k)

4.2.5 *Other relevant resources (e.g. volunteers, associated organisations, networks that might also contribute to implementation).*

AAMPS

Members and their organisations (various universities in and outside Africa), commercial ventures in Africa and Europe, scientific organisations and government agencies in Africa, Europe and the US (e.g. PROTA, ESCOP, USHP).

CRIAA SA-DC

Member of PhytoTrade Africa (The Southern Africa Natural Products Trade Association): technical and financial support, R&D and market information, market development and market linkage services
 Member of the Devil's Claw Range State Working Group (Botswana, Namibia and South Africa): regional co-operation.

Member of the Devil's Claw Working Group in Namibia: a technical, financial and policy committee affiliated to IPTT, chaired by MET

Member of the Indigenous Plant Task Team (IPTT) in Namibia: national stakeholders' co-ordination body, guidance and financial contributions to research and development

Member of the National Plant Genetic Resources Committee of Namibia (NPGRComm), under the auspices of the National Botanical Research Institute (NBRI) of Namibia: national and regional strategy and co-ordination

Member of the National Programme Steering Committee (NPSC) of the Southern Africa Biodiversity Support Programme (SABSP), hosted by the Directorate of Environmental Affairs of the Ministry of Environment & Tourism (MET): national and regional strategy and co-ordination

Member of the Namibian Plant Sector Development Forum in Namibia (Public-Private Partnership initiated by MAWF), representing the Indigenous Plant sector: national strategy & action plans, co-ordination and financial resources

Invited member to the Integrated Community-based Ecosystem Management (ICEMA) Project Steering Committee of the Ministry of Environment and Tourism (MET) : co-ordination, guidance and support to Conservancies

5. OTHER APPLICATIONS MADE TO EUROPEAN INSTITUTIONS, THE EUROPEAN DEVELOPMENT FUND (EDF) AND EU MEMBER STATES

5.1 Grants, contracts and loans obtained over the last three years from European Institutions, the EDF and EU Member States.

AAMPS

Country of intervention	EC budget line, EDF or EU Member States	Amount (EUR)	Year obtained
South Africa	CDE ACP/0313/01/CP	40075	2005
South Africa	CTA	19924	2005

CRIAA SA-DC

Country of intervention	EC budget line, EDF or EU Member States	Amount (EUR)	Year obtained
Namibia	CS2006-116 French Cooperation	19 845	2006
Namibia	FFEM (AFD) French Government	139 200	2005
Namibia	FFEM (AFD) through MET	58 000	2005
Namibia	NASSP (8 th EDF) NRInt. SC	60 000	2005
Namibia	NASSP (8 th EDF) NRInt. SC	6 000	2004
Namibia	CS2004-0142 French Cooperation	20 000	2004
Namibia	NASSP (8 th EDF) NRInt. SC	47 400	2003
Namibia	EC-B7-6000 through Oxfams in Namibia	186 450	2003
Namibia	Government of Finland	11 000	2003

NASSP: National Agricultural Support Services Programme (8 ACP NAM 023)

NRInt. SC: NR International service contracts

5.2 Grant applications submitted (or about to be submitted) to European Institutions, the EDF and EU Member States in the current year.

AAMPS

Country of intervention	EC budget line, EDF or EU Member States	Amount requested (EUR)
Africa wide (based in Mauritius)	Centre for Development of Enterprise	75,000

III. PARTNERS OF THE APPLICANT PARTICIPATING IN THE ACTION

1. DESCRIPTION OF THE PARTNERS

	Partner 1
Full legal name (business name)	The Centre for Research, Information, Action in Africa : Southern Africa - Development and Consulting (CRIA SA-DC)
Nationality	Namibian
Legal status	Incorporated Association Not-For-Gain (Registration No. 21/97/069)
Official address	22 Johann Albrecht Street, P.O. Box 23778, Windhoek, Namibia
Contact person	Michel Mallet (Executive Director) & Dave Cole (Programme Coordinator)
Telephone number	+ 264 (0) 61 220117
Fax number	+ 264 (0) 61 232293
E-mail address	criaawhk@iafrica.com.na
Number of employees	17
Other relevant resources	<ul style="list-style-type: none"> ▪ Government of Namibia (research projects and consultancies): Ministry of Agriculture Water & Forestry, Ministry of Environment & Tourism ▪ Namibian Agronomic Board (training and consultancies) ▪ PhytoTrade Africa (the Southern Africa Natural Products Trade Association) (technical R&D and marketing support)
Experience of similar actions, in relation to role in the implementation of the proposed action	<ul style="list-style-type: none"> ▪ Piloting and implementing the "Sustainably Harvested Devil's Claw" (SHDC) project in Namibia (Omaheke region) since 1997 to date ▪ Co-implementing as a local partner organisation of Intermòn (Spain) the "Omaheke Livelihood Project" co-funded by EC (ref. ONG/PVD/2002/020-819/NA 751) ▪ Organisation of the first Regional Devil's Claw Conference (February 2002) ▪ Service provider to the Namibian "Indigenous Plant Task Team" (IPTT), a Namibian national stakeholder institution co-ordinating and financing interventions for the socio-economic promotion of botanicals for poverty alleviation and value-addition.
History of cooperation with the applicant	Key partner in the establishment of AAMPS (2003)
Role and involvement in preparing the proposed action	Direct consultation in conceptualisation & reviewing proposed action
Role and involvement in implementing the proposed action	Key administrative supporting role, as well as principal role in organising the AAMPS international evaluation / consultative workshop

2. PARTNERSHIP STATEMENT

I have read and approved the contents of the proposal submitted to ProInvest. I undertake to comply with the principles of good partnership practice.

Name:	M. Mallet
Organisation:	CRIAA SA-DC
Position:	Executive Director
Signature:	
Date and place:	9 th November 2006, Windhoek, Namibia

IV. ASSOCIATES OF THE APPLICANT PARTICIPATING IN THE ACTION

1. DESCRIPTION OF THE ASSOCIATES

	Associate 1
Full legal name (business name)	Dept. of Chemistry, University of Mauritius
Nationality	Mauritian
Legal status	University
Official address	Reduit, Mauritius
Contact person	Prof. Ameenah Gurib-Fakim Pro Vice Chancellor
Telephone number	Tel: (230) 454 10 41; 465 6888
Fax number	Fax: (23) 465 1337; 454 9642
E-mail address	Email: fakima@uom.ac.mu; fakima@intnet.mu
Number of employees	20
Other relevant resources	Research and dissemination network for Indian Ocean Islands and East Africa
Experience of similar actions, in relation to role in the implementation of the proposed action	The department has already successfully carried out contracts for CDE, IPGRI, CIDA and SIDA.
History of cooperation with the applicant	Founder member of AAMPS, past secretary/treasurer
Role and involvement in preparing the proposed action	
Role and involvement in implementing the proposed action	cross-checking, reviewing, editing and disseminating herbal profiles

	Associate 2
Full legal name (business name)	Parceval Pty Ltd
Nationality	South African
Legal status	Limited Company
Official address	P.O.Box 158, Wellington 7654
Contact person	Mr. Ulrich Feiter

Telephone number	**27-21-8733895
Fax number	**27-21-8735955
E-mail address	ulrich.feiter@parceval.co.za
Number of employees	143
Other relevant resources	2 certified organic farms, production facility for complimentary medicines
Experience of similar actions, in relation to role in the implementation of the proposed action	Peer reviewer, sub-editor for herbal monographs AAMPS phase I
History of cooperation with the applicant	Founder Member and alternative director
Role and involvement in preparing the proposed action	
Role and involvement in implementing the proposed action	cross-checking, reviewing, editing and disseminating herbal profiles

	Associate 3
Full legal name (business name)	PlantaPhile
Nationality	German
Legal status	Freelancer
Official address	Immanuelkirchstr. 32, 10405 Berlin, Germany
Contact person	Thomas Brendler
Telephone number	+49-(0)30-44341943
Fax number	+49-(0)30-44341944
E-mail address	info@plantaphile.com
Number of employees	Varies, not full time
Other relevant resources	5-10 freelance personnel (technical, scientific, translators etc.)
Experience of similar actions, in relation to role in the implementation of the proposed action	Taking part in the organization in the initial and various follow-up AAMPS meeting, board meetings and AGM, taking part in the compiling, editing and (electronic) publishing of the initial 21 herbal monographs (AAMPS phase 1), helping to organize AHAM 2006, Nairobi
History of cooperation with the applicant	Founder member, board member

Role and involvement in preparing the proposed action	Organizer
Role and involvement in implementing the proposed action	Organizer

	Associate 4
Full legal name (business name)	Vicdoris Pharmaceuticals Ltd.
Nationality	Ghanaean
Legal status	Ltd. Company
Official address	71 Ring Road Central, POBox 15088, Accra-North, Ghana
Contact person	Victor Attafua
Telephone number	+233-21-227091 / 235145
Fax number	+233-21-220198
E-mail address	vicwad@myzipnet.com
Number of employees	30
Other relevant resources	
Experience of similar actions, in relation to role in the implementation of the proposed action	Trader in raw materials and African herbal products, long standing experience with local growing and collecting practices, quality standards and processing practices
History of cooperation with the applicant	Founder member of AAMPS, alternate director
Role and involvement in preparing the proposed action	-
Role and involvement in implementing the proposed action	Recommend plant species of commercial value, review and edit plant profiles

	Associate 5
Full legal name (business name)	Phytomedicine Programme, University of Pretoria
Nationality	South African
Legal status	University
Official address	Private Bag X04, Onderstepoort, 0110 South Africa
Contact person	Prof. J N Eloff Programme Leader
Telephone number	Tel: (+27) 12-529-8244
Fax number	Fax: (+27) 12-529-8525
E-mail address	Email: kobus.eloff@up.ac.za
Number of employees/post grad students	c. 38
Other relevant resources	Research on Medicinal Plants see http://www.up.ac.za/academic/veterinary/depts_paracl_phyto.htm
Experience of similar actions, in relation to role in the implementation of the proposed action	The group has already successfully carried out contracts for CDE CTA. Experience in preparing Strategic Plans for National Botanic Gardens of South Africa and Research Strategic Plan for National Botanical Institute.
History of cooperation with the applicant	Founder member of AAMPS, leader chairman of Board
Role and involvement in preparing the proposed action	Wrote concept note and finalized application after input from partner and associates
Role and involvement in implementing the proposed action	Evaluating Strategic Plan and profiles

V. CHECKLIST

PRO€INVEST

Grant Application Form

Call for Proposals 2006 Demand Driven activities - Intermediary Organisations

ADMINISTRATIVE DATA	
Name of the Applicant	Association for African Medicinal Plants Standards
Nationality	Mauritius
Legal Entity Sheet number ¹	Not applicable
Legal status²	Non profit making Trade Association
Date of establishment of the organization	2005
Partner 1	Name: CRIAA SA-DC Nationality: Namibian Legal status: Non Profit Making

¹ If the applicant has already signed a contract with the European Commission

² E.g. non profit making, governmental body, international organisation...

BEFORE SENDING YOUR PROPOSAL, PLEASE CHECK THAT EACH OF THE FOLLOWING COMPONENTS IS COMPLETE AND RESPECTS THE FOLLOWING CRITERIA :	To be filled in by the applicant		To be filled in by the Contracting Authority	
	Yes	No	Yes	No
1. The correct grant application form, published for this call for proposals, has been used	X			
2. The proposal is typed and is in English or French,	X			
3. One original is included	X			
4. A floppy disk or Cd-Rom is enclosed	X			
5. Each partner has completed and signed a partnership statement and the statements are included (if any). Please indicate "Not applicable" (NA) if you have no partner	X			
6. The budget is presented in the format requested, is expressed in €and is enclosed	X			
7. The logical framework has been completed and is enclosed		X		
8. The duration of the action is equal to or lower than 12 months (the maximum allowed)	X			
9. The requested contribution is equal to or lower than the maximum allowed (refer to Guidelines)	X			
10. The requested contribution is equal to or lower than 67 % of the total eligible costs (maximum percentage allowed)	X			
11. The Declaration by the applicant has been filled in and has been signed	X			
Title of the Proposal	Institutional Strengthening of the Association for African Medicinal Plant Standards			

VI. DECLARATION BY THE APPLICANT

A. The applicant declares that:

- It has the sources of financing and professional competence and qualifications specified in section 2.3 of the Guidelines for Applicants.
- It undertakes to comply with the principles of good partnership practice foreseen in section III.2 of the grant application form.
- It is directly responsible for the preparation and management of the action with its partners, and is not acting as an intermediary.
- It and its partners do not fall in any of the categories (a) to (f) listed in section 2.1.1(2) of the Guidelines for Applicants.
- If selected, it is in a position to deliver immediately, upon request, the supporting documents stipulated under point 2.4 of the Guidelines for Applicants

Furthermore, the applicant declares that :

	To be filled in by the applicant		To be filled in by the Contracting Authority	
	Yes	No	Yes	No
1. It is eligible in accordance with the criteria set out under point 2.1.1 of the guidelines.)	x			
2. Partner 1 is eligible (in accordance with the criteria set out under point 2.1.2 of the guidelines.) (if any)³	x			
3. Partner 2 is eligible (in accordance with the criteria set out under point 2.1.2 of the guidelines.) (if any)⁴				
4. Partner ... is eligible (in accordance with the criteria set out under point 2.1.2 of the guidelines.) (if any)⁵ NB: add as many rows as partners				

B. SIGNATURE:

I, the undersigned and person responsible in the applicant organisation for the proposal, certify that the information given in this Declaration is correct.

Date: 11 November 2006

Name: Prof Jacobus Nicolaas Eloff Signature:

Position: Chairman of AAMPS Board of Directors

³ Please indicate "Not Applicable" (NA) if you have no partner

⁴ Please indicate "Not Applicable" (NA) if you have no partner

⁵ Please indicate "Not Applicable" (NA) if you have no partner

VII. ASSESSMENT GRID

(FOR THE USE OF THE CONTRACTING AUTHORITY ONLY)

	YES	NO
1. The Deadline has been respected		
2. The Application form satisfies all the criteria mentioned in the Checklist (Section V of the Grant application form).		
The verification of the Checklist has been conducted by On the		
DECISION 1: The Committee has decided to recommend the Concept Note for Evaluation after having passed the Administrative check. (If not, reasons must be encoded in the Administrative check Grid in CRIS and in the Administrative Check report in CRIS).		
DECISION 2: The Committee has approved the Concept Note and decided to proceed with the evaluation of the full proposal after having pre-selected the best Concept Notes. (If not, reasons must be encoded in the Concept Note Evaluation Grid in CRIS – this includes the evaluation sheet for assessors and delegations, in the Concept Note Evaluation report and in the letters sent out to applicants.)		
	YES	NO
DECISION 3: A. The Committee has recommended the proposal for Eligibility verification after having been provisionally selected within the top ranked scored proposals and within the available financial envelope. (If not, reasons must be encoded in the Evaluation Grid in CRIS – this includes the evaluation sheet for experts and delegations, in the Evaluation report and in the letters sent out to applicants.)		
B. The Committee has recommended the proposal for Eligibility verification after having been put in the reserve list should any provisionally selected proposal fail to fulfil the eligibility verification, according to the top ranked scored proposals and within the available financial envelope. (If not, reasons must be encoded in the Evaluation Grid in CRIS – this includes the evaluation sheet for experts and delegations, in the Technical Evaluation report and in the letters sent out to applicants.)		
3. The supporting documents listed hereunder, submitted according to the Guidelines (Section 2.2.5), satisfy all the eligibility criteria of the applicant and its partner(s) (if any).		

a. The applicant's statutes.		
b. The statutes or articles of association of <u>all partners</u> .		
c. The applicant's external audit report. (where applicable) ⁶		
d. The Legal Entity Sheet (see annex D) is duly completed and signed by the applicant and is accompanied by the justifying documents requested.		
e. A financial identification form conforming to the model attached at Annex E.		
f. Copy of the applicant's latest accounts.		
The assessment of the eligibility has been conducted byOn the		
<p>DECISION 4: The Committee has selected the proposal for funding after having verified its eligibility according to the criteria stipulated in the Guidelines. (If not, reasons must be encoded in the Eligibility Verification Grid in CRIS, in the Eligibility Verification Report in CRIS and in the letters sent out to applicants.)</p>		

⁶ Please indicate "Not Applicable" (NA) if your grant does not request an audit report. (Grant < 300 000€- Operating grant < 75 000€)

⁷ To be inserted only where the Contracting Authority is a body of the European Commission