

7 REFERENCES

AACC International. 2000. Approved Methods of the American Association of Cereal Chemists, 10th Ed. Methods 10-50D, 44-15A, 46-30, 08-01, 30-25 and 32-10. The Association: St. Paul, MN.

Ait-Ameur, L., Mathieu, O., Lalanne, V., Trystram, G., Birlouez-Aragon, I. 2007. Comparison of the effects of sucrose and hexose on furfural formation and browning in cookies baked at different temperatures. *Food Chem.* 101:1407-1416.

Ait-Ameur, L., Rega, B., Giampaoli, P., Trystram, G., and Birlouez-Aragon, I. 2008. The fate of furfural and other volatile markers during the baking process of a model cookie. *Food Chem.* 111:758-763.

Akinwande, B. A., Ade-Omowaye, B. I. O., Olaniyan, S. A., and Akintaro, O. O. 2008. Quality evaluation of ginger flavoured soy-cassava biscuits. *Nutr. Food Sci.* 38:473-481.

Akubor, P. I., and Ukwuru, M. U. 2003. Functional properties and biscuit making potential of soybean and cassava flour blends. *Plant Foods Hum. Nutr.* 58:1-12.

Alais, C., and Linden G. 1991. *Food Biochemistry*. Ellis Harwood: Chichester. Pp 130-147.

Allen L. H., Rosado J. L., and Casterline J. E. 1995. Vitamin B-12 deficiency and malabsorption are highly prevalent in rural Mexican communities. *Am. J. Clin. Nutr.* 62: 1013-9.

Anyango, J. O. 2009. Improvement in the protein quality of African sorghum foods through compositing with cowpea. MSc Dissertation, University of Pretoria :Pretoria.

AOAC International. 2000. *Official Methods of Analysis*. 17th Ed. Methods 960-48 and 975.44. The Association: Washington DC.

Aristoy, M. C., and Toldra, F. 2004. Amino acids. Pages 83-123, in: Handbook of Food Analysis, 2nd Ed. Vol. 1. L. M. L. Nollet, ed. Marcel Dekker: New York.

Asare, E. K., Sefa-Dedeh., Sakyi-Dawson., and Afaoku, E. O. 2004. Application of response surface methodology for studying the product characteristics of extruded rice-cowpea-groundnut blends. *Int. J. Food Sci. Nutr.* 55:431-439.

Ashley, V. M., and Anderson, G. H. 1975. Food intake regulation in the weanling rat: Effects of the most limiting essential amino acids of gluten, casein, and zein on the self-selection of protein and energy. *J. Nutr.* 105:1405-1411.

Asma, A. M., El Fadil, B., and El Tinay, A. H. 2006. Development of weaning food from sorghum supplemented with legume and oil seeds. *Food Nutr. Bull.* 27:26-34.

ASTM International. 2003. Official Methods of Approved Standards of the American Society for Testing and Materials. Designations: E 2299 – 03 and E 790 – 03. ASTM International: West Conshohocken, PA.

Augustin, M. O., and Munoz, V. A. 2006. Proteins and peptides in enteral nutrition. *Nutr. Hosp.* 21:1-13.

Awadelkareem, A. M, Mustafa, A. I., and El Tinay, A. H. 2008. Protein mineral content and amino acid profile of sorghum flour as influenced by soybean protein concentrate supplementation. *Pakistan J. Nutr.* 7:475-479.

Awadelkareem, A. M., Muralikrishna, G., El Tinay, A. H., and Mustafa, A. I. 2009. Characterisation of tannin and study of *in vitro* protein digestibility and mineral profile of Sudanese and Indian sorghum cultivars. *Pakistan J. Nutr.* 8:469-476.

Axtell, J. D., Kirleis, A. W., Hassen, M. M., D'Croz-Mason, N., Mertz, E. T., and Munck, L. 1981. Digestibility of sorghum proteins. *Proc. Natl. Acad. Sci. USA.* 78:1333-1335.

Babji, A. S. H., and Letchumanan, S. 1988. Evaluation of nutritive value of local and soy-beef hamburgers. Pages 237-242 in: Vegetable Protein Utilization in Human Foods and Animal Feedstuffs. T. H. Applewhite, ed. Proceedings of the World Congress. American Oil Chemists' Society: Champaign, IL.

Bach Knudsen, K. E., Kirleis, A. W., Eggum, B. O., and Munck, L. 1988a. Carbohydrate composition and nutritional quality for rats of sorghum to prepared from decorticated white and whole grain red flour. *J. Nutr.* 118:588-597.

Bach Knudsen, K. E., Munck, L., and Eggum, B. O. 1988b. Effect of cooking, pH and polyphenols on carbohydrate composition and nutrition quality of a sorghum (*Sorghum bicolor* (L.) Moench) food, ugali. *Br. J. Nutr.* 59:31-47.

Badi, S. M., and Hoseney, R. C. 1976. Use of sorghum and pearl millet flours in cookies. *Cereal Chem.* 53:733-738.

Baltsavias, A., and Jurgens, A. 1997. Factors affecting fracture properties of short-dough biscuits. *J. Texture Stud.* 28: 205-219.

Baskaran, V., Mahadevamma, N. G., Malleshi, S. G., Jayaprakashan., and Lokesh, B. R. 2001. Biological evaluation for protein quality of supplementary foods based on popped cereals and legumes suitable for feeding rural mothers and children in India. *Plant Foods Hum. Nutr.* 56:37-49.

Beames, R. M., and Eggum, B. O. 1981. The effect of type and level of protein, fibre and starch on nitrogen excretion patterns in rats. *Br. J. Nutr.* 46:301-313.

Belton, P. S., Delgadillo, I., Halford, N. G., and Shewry, P. R. 2006. Kafirin structure and functionality. *J. Cereal Sci.* 44:272-286.

Bender, A. E. 1998. Dictionary of Nutrition and Food Technology. 6th Ed. Woodhead Publishing: Cambridge, UK. Pp 24-25.

Bender, A. E., and Mohammadiha, H. 1981. Low digestibility of legume nitrogen. Proc. Nutr. Soc. 40:66A.

Bender, A. E., and Mohammadiha, H. and Kausar Almas. 1978. Digestibility of legumes and available lysine content. Qual. Plant. 29:219.

Bender, D. A. 2005. "Complementation." A Dictionary of Food and Nutrition. Encyclopedia.com. www.encyclopedia.com/doc/1O39-complementation.html. Accessed August 2009.

Bennet, W. F., Tucker, B. B., and Maunder, A. B. 1990. Modern Grain Sorghum Production. Iowa State University Press: Ames, IA. Pp 3-9.

Bidlingmeyer, B. A., Cohen, S. A., and Tarvin, T. L. 1984. Rapid analysis of amino acids using pre-column derivatization. J. Chromatogr. 336:93-104.

Birch, L. L. 1980. Effect of peer models food choices and eating behaviors on pre-schoolers' food preferences. Child Dev. 52:489-496.

Birch, L. L., and Marlin, D. W. 1982. I don't like it; I never tried it: Effects of exposure on two year old children's preferences. Appetite 5:109-116.

Bjorck, I., Noguchi, A., Asp, N., Cheftel, J., and Dahlqvist, A. 1983. Protein nutritional value of a biscuit processed by extrusion cooking: Effects on available lysine. J. Sci. Food Agric. 31:488-492.

Bodwell, C. E., and Marable, N. L. 1981. Effectiveness of methods for evaluating the nutritional quality of soy bean protein. J. Am. Oil Chem. Soc. 58:475-483.

Boge, E. L., Boylston., T. D., and Wilson., L. A. 2009. Effect of cultivar and roasting method on composition of roasted soy bean. J. Sci. Food Agric. 89:829-826.

Bookwalter, G. N., Kirleis, A. W., and Mertz E. T. 1987. *In vitro* digestibility of protein in milled sorghum and other processed cereals with and without soy-fortification. J Food Sci. 52: 1577-1579.

Bookwalter, G. N. 1981. Requirements for foods containing soy protein in the food for peace program. J. Am. Cereal Chem. 58:455-460.

Bookwalter, G. N., Warner, K., and Anderson, R. A. 1977. Fortification of dry-milled sorghum with oilseed proteins. J. Food Sci. 42:969-97.

Boutrif, E. 1991. Recent developments in protein quality. Food Nutr. Agric. 2:3.

Bredie, W. L. P., Mottram, D. S., Hassell, G. M., and Guy, R. C. E. 1998. Sensory characteristics of the aromas generated in extruded maize and wheat flour. J. Cereal Sci. 28:96-106.

Bressani, R., Elias, L.G., and Gomez-Brenes, R. A. 1972. Improvement of protein quality by amino acid and protein supplementation. Pages 475-540 in: Protein and Amino Acid functions, Vol II. E. L Bigwood, ed. Pergamon Press: Oxford.

Brown, W. E., and Braxton, D. 2000. Dynamics of food breakdown during eating in relation to perception of texture and preference: a study on biscuits. Food Qual. Pref. 11:259-267.

Bulusu, S., Laviolette, L., Mannar, V., and Reddy, V. 2007. Cereal fortification programmes in developing countries. Pages 91-105 in: Issues in Complementary Feeding. C. Agostoni, and O. Brunner, eds. Nestlé Nutrition Workshop Series, Vol 60. Paediatric Programme, Nestec: Basel.

Bundy, D., Burbano C., Gosh, M., Gelli, A., Jukes, M. and Drake, L. 2009. Rethinking School Feeding: Social Safety Nets, Child Development and the Education Sector. World Bank: Wahington DC.

Bushuk, W. 1998. Interactions in wheat dough. Pages 1-15 in: Interactons: The Keys to Cereal Quality. R. J Hamer and R. C. Hoseney, eds. American Association of Cereal Chemists: St. Paul, MN.

Bushuk, W., and Scanlon, M. G. 1993. Wheat and wheat flours. Pages 1-19 in : Advances in Baking Technology. B. S. Kamel, and C. E. Stauffer, eds. VCH Publishers: New York.

Butler, L. G., Riedl, D. J., Lebryk, D. G., and Blytt, H. J. 1984. Interaction of proteins with sorghum tannin: Mechanism, specificity and significance. *J. Am. Oil Chem. Soc.* 61:916-920.

Carpenter, K. J. 1960. The estimation of the available lysine in animal-protein foods. *J. Biochem.* 77:604-660.

Chandrashekhar, A., and Kirleis, A. W. 1988. Influence of protein on starch gelatinization in sorghum. *Cereal Chem.* 65:457-462.

Chang, S. 1979. Flavor and Flavor stability in foods. *J. Am. Oil Chem. Soc.* 56:908A-911A.

Charissou, A., Ait-Ameur, L., and Birloeuz-Aragon., I. 2007. Kinetics of formation of three indicators of the Maillard reaction in model cookies: Influence of baking temperature and type of sugar. *J. Sci. Food Agric.* 55:4532-4539.

Chen, D.J., Weingartner, K., and Brewer, M.S. 2003. Consumer evaluation of soy ingredient –containing cookies. *J. Food Qual.* 26:219-229.

Chibber, B. A. K., Mertz, E. T., and Axtell, J. D. 1980. In vitro digestibility of high-tannin sorghum at different stages of dehulling. *J. Agric. Food Chem.* 28:160-16.

Chiremba C., Taylor, J. R. N., and Duodu, K. G. 2009. Phenolic content, antioxidant activity and consumer acceptability of sorghum cookies. *Cereal Chem.* 86:590-594.

Chung, S., and Vickers, Z. 2007. Long-term acceptability and choice of teas differing in sweetness. *Food Qual. Pref.* 18:963-974.

Conlin, J. A., Gathercole, S. E., and Adams, J. W. 2005. Children's working memory: Investigating performance limitations in complex span tasks. *J. Exp. Child Psychol.* 90:303-317.

Dahlberg J. A. 2000. Classification and characterization of sorghum. Pages 99-130 in: *Sorghum: Origin, History, Technology and Production*. W. C Smith,. and R. A. Frederiksen, eds. John Wiley and Sons: New York.

Damodaran, S. 1996. Amino acids, peptides and proteins. Pages 321-429 in: *Food Chemistry*, 4th Ed. O. R. Fennema, ed. Marcel Dekker: New York.

Daniel, V. A., Leela, R., Doroiswamy, T. R., Jajalakshmi, D., Rao, S., Swaminathan, J., and Parpia, H. A. B. 1966. The effect of supplementing a poor kaffir-corn (*Sorghum vulgare*) diet with L-lysine and DL-threonine on the digestibility coefficient, biological value, and net utilization of proteins and retention of nitrogen in children. *J. Nutr. Diet.* 3:10-14.

De Mann, J. M. 1999. *Principles of Food Chemistry*. 3rd Ed. Aspen Publishers: Gaithersburg, MD. Pp 120-134.

Del Rosso, J. M. 1999. School feeding programmes: Improving effectiveness and increasing the benefit to education. A guide for programme managers. Partnership for Child Development. www.ceid.ox.ac.uk/child/. Accessed January 2009).

Delk, J., and Vickers, Z. 2007. Determining a series of whole wheat difference thresholds for use in gradual adjustment intervention to improve children's liking of whole wheat bread rolls. *J. Sensory Stud.* 22:639-652.

Dendy, D. A. V. 1993. Drought and urbanization in Africa: The future of sorghum and millet. Pages 299-317 in: *Cereal Science and Technology: Impact on a Changing Africa*. J. R. N. Taylor, P. G. Randall, and J. H. Viljoen, eds. CSIR: Pretoria.

Doggett, H. 1988. *Sorghum*. 2nd Ed. Longman Scientific and Technical: Harlow. Pp 260-282.

Duodu, K. G., Taylor, J. R. N., Belton, P. S., and Hamaker, B. R. 2003. Factors affecting sorghum protein digestibility. *J. Cereal Sci.* 38:117-131.

Duodu, K. G., Nunes, A., Delgadillo, I., Parker, M. L., Mills, E. N. C., Belton, P. S., and Taylor, J. R. N. 2002. Effect of grain structure and cooking on sorghum and maize in vitro digestibility. *J. Cereal Sci.* 35:161-174.

Edem, D. O., Ayatse, J. O. I., and Itam, E. H. 2001. Effect of soy protein supplementation on the nutritive value of “gari” (farina) from *Manihot esculenta*. *Food Chem.* 75:57-62.

Eggum, B. O., Kreft, I., and Javornic, B. 1981. Chemical composition and protein quality of buckwheat (*Fagopyrum esculentum Moench*). *Plant Foods Hum. Nutr.* 30:175-179.

Eggum, B.O., Bach Knudsen, K. E., Munck, L., Axtell, J. D., and Mukuru, S. Z. 1982. Milling and nutritional value of sorghum in Tanzania. Pages 211-225 in: Proc. Int. Symp. on Sorghum Grain Quality. L. W. Rooney and D. S. Murty, eds. ICRISAT: Pantacheru, A. P., India.

Eggum, B. O., Monowar, L., Bach Knudsen, K. E., Munck, L., and Axtell, J. 1983. Nutritional quality of sorghum and sorghum foods from Sudan. *J. Cereal Sci.* 1:127-137.

Einstein, M. A. 1991. Descriptive techniques and their hybridization. Pages 317-338 in: Sensory Science Theory and Applications in Foods. H. T. Lawless and B. P. Klein, eds. Marcel Dekker: New York.

El-Adawy, T. A. 1997. Effect of sesame seed protein supplementation on the nutritional, physical, chemical and sensory properties of wheat bread. *Food Chem.* 59:7-14.

El-Khalifa, O. E., and El-Tinay, A. 2002. Effect of cystine on bakery products from wheat-sorghum blends. *Food Chem.* 77:133-137.

Elkin, R. G., Arthur, E., Hamaker, B. R., Axtell, J. D., Douglas, M. W., and Parsons, C. M. 2002. Nutritional value of a highly digestible sorghum cultivar for meat-type chicken. *J. Agric. Food Chem.* 50:4146-4150.

Emmambux, N. M., and Taylor, J. R. N. 2003. Sorghum kafirin interaction with various phenolic compounds. *J. Sci. Food Agric.* 83:402-407.

Eneche, E. H. 1999. Biscuit making potential of millet/pigeon pea flour blends. *Plant Foods Hum. Nutr.* 54:21-27.

Erbersdobler, H. F., and Faist, V. 2001. Metabolic transit of Amadori products. *Nahrung*, 45: 177-81.

Ezeogu, L. I., Duodu, K. G., Emmambux, M. N. and Taylor, J. R. N. 2008. Influence of cooking conditions on the protein matrix of sorghum and maize endosperm flours. *Cereal Chem.* 85:397-402.

Fairweather-Tait, S. J., Gee, J. M., and Johnson, I. T. 1983. The influence of cooked kidney beans (*Phaseolus vulgaris*) on intestinal cell turnover and faecal nitrogen excretion in the rat. *Br. J. Nutr.* 49:303-312.

FAO/WHO. 2009. Codex Alimentarius: Foods for Special Dietary uses (including Foods for Infants and Young Children). Food and Agriculture Organization: Rome.

FAO. 2009. State of Food Insecurity in the World: Economic Crisis – Impacts and Lessons Learned. Food and Agriculture Organization: Rome.

FAO. 2007. Wheat: Production. www.faostat.fao.org/faostat. Accessed April 2008.

FAO. 2004. Human Energy Requirements: Report of the Joint FAO/WHO/UNU Expert Consultation Group. Food and Nutrition Technical Report Series 1. Food and Agriculture Organization: Rome.

FAO. 2003. Food Energy: Methods of Analysis and Conversion Factors. FAO Food and Nutrition Paper 77. Food and Agriculture Organization: Rome. Pp 18-37.

FAO. 1997. Agriculture Food and Nutrition for Africa – A Resource Book for Teachers of Agriculture. Food and Agriculture Organization: Rome.

FAO/WHO. 1994. Codex Alimentarius: Foods for Special Dietary uses (including Foods for Infants and Children). Joint FAO/WHO Food Standards Programme, Codex Alimentarius Commission, Vol 4, 2nd Ed. Food and Agriculture Organization: Rome.

FAO/WHO. 1991. Protein Quality Evaluation. Report of the Joint FAO/WHO Expert Consultation. Food and Nutrition Paper No. 51. Food and Agriculture Organization: Rome.

FAO/WHO/UNU. 1985. Energy and Protein Requirements. Report of Joint FAO/WHO/UNU Expert Consultation. WHO Technical Report Series No. 724. World Health Organization: Geneva.

Fehily, A. M. 2003. Soy (soya) beans: Dietary importance. Pages 5392-5397 in: Encyclopaedia of Food Sciences and Nutrition. B. Caballero, C. L. and Trugo, P. M, Finglas, eds. Elsevier Science: Oxford.

Fernandes-Artigas, P., Garcia-Villanova, B., and Guerra-Hernandez, E. 1999. Blockage of available lysine at different stages of infant cereal production. J. Sci. Food Agric. 7:851-854.

Fernandez-Quintela, A., Macarulla, M. T., Del Barrio., and Martinez, J. A. 1997. Composition and functional properties of protein isolates obtained from commercial legumes grown in northern Spain. Plant Foods Hum. Nutr. 51:331-342.

Friedman, M. 2004. Nutrition: Effects of food processing. Pages 328-340 in: Encyclopaedia of Grain Science. C. Wrigley, H. Corke, and C. E. Walker, eds. Elsevier: Oxford.

Friedman, M. 1999. Chemistry, biochemistry, nutrition and microbiology of lysinoalanine, lanthionine, and histidoalanine in food and other proteins. J. Agric. Food Chem. 47:1295-319.

Friedman, M. 1996. Nutritional value of proteins from different food sources. A review. *J. Agric. Food Chem.*, 44:6-29.

Fukushima, D. 1991. Recent progress of soy bean protein foods: Chemistry, technology and nutrition. *Food Rev. Int.* 7:323-351.

Furham M. P., Charney P., and Mueller C. M. 2004. Hepatic protein and nutrition assessment. *J. Am. Dietetic Assoc.* 104:1258-1264.

Galloway, R., Kristjansson, E., Gelli, A., Meir, U., Espejo, F., and Bundy, D. 2009. School feeding outcomes and costs. *Food Nutr. Bull.* 2:171-182.

Geervani, P., Vimala, K. U., Predeep, U., and Devi, R. M. 1996. Effect of processing on protein digestibility, biological value and net protein utilization of millet and legume based infant mixes and biscuits. *Plant Foods Hum. Nutr.* 49:221-227.

Gershoff, S. N., McGandy, R. B., Sutrapreyasri, D., Nondasuta, A., Pisolyabutra, U. and Tantiwongse, P. 1975. Amino acid fortification of rice studies in Thailand. 1. Background and baseline data. *Am. J. Clin. Nutr.* 28:170-182.

Gibney, M. J., Vorster, H. H., and Kok, F. J. 2002. *Human Nutrition*. Blackwell Publishing: Oxford. Pp 46-62.

Gibson R. S. 2005. *Principles of Nutritional Assessment*. 2nd Ed. Oxford University Press: Oxford. Pp 407-435.

Gilani, S., and Sepehr, E. 2003. Protein digestibility and quality in products containing antinutritional factors are adversely affected by old age rats. *J. Nutr.* 133:220-225.

Goeseart, H., Brijs, K., Veraverbeke, W. S., Courtin, C. M., Grubruers, K., and Delcour, J. A. 2005. Wheat flour constituents: How they impact on bread quality and how to impact their functionality. *Trends Food Sci. Technol.* 16:12-30.

Goldman, A. 1994. Predicting product performance in the market place by immediate- and extended-use sensory testing. *Food Technol.* 48 (10):103-106.

Graham, G. G., MacLean, W. C., Morales, E., Hamaker, B. R., Kirleis, A. W., Mertz, E. T., and Axtell, J. D. 1986. Digestibility and utilization of protein and energy from nasha, a traditional fermented Sudanese weaning food. *J. Nutr.* 116:978-984.

Graybosch, R. A., Peterson, C. J., Baenziger, P. S., and Shelton, D. R. 1995. Environmental modification of hard wheat flour protein composition. *J. Cereal Sci.* 22:45-51.

Grillenberger, M. 2006. Impact of animal source foods on growth, morbidity and iron bioavailability in Kenyan school children. PhD thesis, Wageningen University: Wageningen.

Guerra-Hernandez, E., and Carzo, N. 1996. Furosine determination in baby cereals by ion-pair reversed-phase liquid chromatography. *J. Cereal Sci.* 73:729-731.

Guinard, J. 2001. Sensory and consumer testing with children. *Trends Food Sci. Technol.* 11:263-273.

Hamaker, B. R., Allen, W. K., Mertz, E. T., and Axtell, J. D. 1986. Effect of cooking on the protein profiles and in vitro protein digestibility of sorghum and maize. *J. Agric. Food Chem.* 34:647-649.

Hamaker, B. R., Kirleis A.W., Butler L. G., Axtell J. D., and Mertz, E. T. 1987. Improving the in vitro protein digestibility of sorghum with reducing agents. *Proc. Nat. Acad. Sci. USA.* 84: 626-628.

Hamaker, B. R., Mohamed, A. A., Habben, J. E., Huang, C. P., and Larkins, B. A. 1995. Efficient procedure for extracting maize and sorghum kernel proteins reveals higher prolamin contents than the conventional method. *Cereal Chem.* 72:583-588.

Hammond, E. G., Murphy, P. A., and Johnson, L. A. 2003. Soy (Soya) beans: Properties and analysis. Pages 5379-5383 in: Encyclopaedia of Food Sciences and Nutrition. B. Caballero, C. L. Trugo and P. M. Finglas, eds. Elsevier Science: Oxford.

Harper, A. E. 1974. Effects of disproportionate amounts of amino acids. Pg 138-166 in: Improvement of Protein Nutriture. A. E. Harper and D. M Hegsted, eds. National Academy of Sciences: Washington DC.

Hazelton, J. L., Des Rochers, J. L., and Walker, C. E. 2004. Cookies, biscuits and crackers: Chemistry of manufacture. Pages 307-312 in: Encyclopaedia of Grain Science, Vol 1. C.Wrigley, H. Corke, and C. E. Walker, eds. Elsevier Science: Oxford.

Hendricks, W. H., Moughan, P. J., Boer, H., and van der Poel, A. F. B. 1994. Effects of extrusion on the dye-binding, fluorodinitrobenzene-reactive and total lysine content of soyabean and peas. Animal Feed Sci. Technol. 48:99-109.

Hetherington, M.M., Pirie, L. M., and Nabbs, S. 2002. Stimulus satiation: Effects of repeated exposure to foods on pleasantness and intake. Appetite 38:19-28.

Hikeezi, D. 1994. Cookie making using dehulled high tannin sorghum supplemented with peanut and/or sunflower flours. Master of Science thesis, Kansas State University: Manhattan, KS.

Hodge, J. E. 1953. Chemistry of browning reactions in model systems. J. Agric. Food Chem. 1:928-943.

Hofvander, Y., and Underwood, B. A. 1987. Processed supplementary foods for older infants and young children, with special reference to developing countries. Food Nutr. Bull. 9:1-20.

Hooda, S., and Jood, S. 2005. Organoleptic and nutritional evaluation of wheat biscuits supplemented with untreated and treated fenugreek flour. Food Chem. 90:427-435.

Hoojjat, P., and Zabic, M. E. 1984. Sugar-snap cookies prepared with wheat-navy bean-sesame seed flour blends. *Cereal Chem.* 61:41-44.

Hoppe, C., Andersen, S. G., Jacobsen, S., Molgaard, C., Friis, H., Sangild P. T and Michealsen, F. 2008. The use of whey or skimmed milk powder in fortified blended foods for vulnerable groups. *J. Nutr.* 138:145S-161S.

Horvatic, M., and Eres, M. 2002. Protein nutrition quality during production and storage of dietetic biscuits. *J. Sci. Food Agric.* 82:1617-1620.

Hoseney, R. C. 1994. Principles of Cereal Science and Technology. 2nd Ed. American Association of Cereal Chemists: St. Paul, MN. Pp 1-305

Hoseney, R. C., Zelezak, K., and Lai, C. S. 1986. Wheat gluten: A glassy polymer. *Cereal Chem.* 63:285-286.

Hsu, H. W., Vavac, D. L., Satterlee, L. D and Miller, G. A. 1977. A multienzyme technique for estimating protein digestibility. *J. Food Sci.* 42:1269-1273.

Human-Vogel, S. 2007. Policy guidelines on the inclusion of minor children in research investigations. Faculty of Education, University of Pretoria. www.up.za. Accessed July 2009.

Hurrell, R. F., and Carpenter, K. J. 1981. The estimation of available lysine in foodstuffs after Maillard reactions. *Prog. Food Nutr. Sci.* 5:159-176.

Hurrell, R. F., Lerman, P., and Carpenter, K. J. 1979. Reactive lysine in foodstuffs as measured by rapid dye-binding procedure. *J. Food Sci.* 44:1221-1231.

Hussain, T., Abbas, S., Khan, M. A., and Scrimshaw, N. S. 2004. Lysine fortification of wheat flour improves selected indices of the nutritional status of predominantly cereal-eating families in Pakistan. *Food Nutr. Bull.* 25:114-122.

Institute of Medicine, Food and Nutrition Board (IOM). 2005. Dietary Reference Intakes for Energy, Carbohydrates, Fiber, Fat, Fatty Acids, Cholesterol, Protein and Amino Acids (Macronutrients). National Academies Press: Washington DC. Pp 589-768

International Crops Research Institute for the Semi Arid Tropics (ICRISAT). Crops: Sorghum. 2009. www.icrisat.org/sorghum/sorghum.htm. Accessed November 2009.

Istfan, N., Murray, E., Janghorbani, M., and Young, V. R. 1983. An evaluation of the nutritional value of a soy protein concentrate in young adult men using the short term nitrogen balance method. *J. Nutr.* 113:2516-2523.

Jackson, C. J., Bourne, M. C., and Barnard, J. 1996. Optimization of blanching for crispness of banana chips using response surface methodology. *J. Food Sci.* 61:165-166.

Jansen, G. R. 1969. Total protein value of protein and amino acid-supplemented bread. *Am. J. Clin. Nutr.* 22:38-43.

Johnson, J. R., and Vickers, Z. M. 1992. Factors influencing sensory specific satiety. *Appetite* 19:15-31.

Joint United Nations Programme on HIV/AIDS (UNAIDS) and World Health Organization (WHO). 2009. Aids Epidemic Update. www.unaids.org. Accessed March 2010.

Joseph, E., and Swanson, B. G. 1993. Growth and nitrogen retention of rats fed bean (*Phaseolus vulgaris*) and bean and rice diets. *Food Res. Int.* 26:261-269.

Kannan, S., Nielsen, S. S., and Mason, A. C. 2001. Protein Digestibility-Corrected Amino Acid Scores of beans and bean-rice infant weaning food products. *J. Agric. Food Chem.* 49:5070-5074.

Kar, B. R., Rao, S. L., and Chandramouli, B. A. 2008. Cognitive development in children with chronic Protein Energy Malnutrition. *Behavioural Brain Funct.* 4:1-12

Karr-Lilenthal, L. K., Bauer, L. L., Zinn, K. E., Frazier, R. L., Parsons, C. M., and Fahey, G. C. 2006. Chemical composition and nutritional quality of soy bean meals prepared by extruder/expeller processing for use in poultry diets. *J. Agric. Food Chem.* 54:8108-8114.

Kavithaparna, S., Geervani, P., and Sumathi, S. 1988. Digestibility and retention of proteins of sorghum products by preschool children and adults. *Nutr. Rep. Int.* 38:1231-1238.

Kayitesi, E. 2010. Sensory and nutritional quality of marama-sorghum composite flours and porridges. MSc Dissertation, University of Pretoria: Pretoria.

Kebakile, M. M., Rooney L. W., De Kock, H. L., and Taylor, J. R. N. 2008. Effects of sorghum type and milling process on the sensory characteristics of sorghum porridge. *Cereal Chem.* 85:307-313.

Kent, N. L., and Evers, A. D. 1994. Technology of Cereals: An introduction for students of Food Science and Agriculture, 4th Ed. Elsevier Science: Oxford. Pp 78-190.

Kim, J. S., Kim, K. J., Ma, W. C. J., and Chung, H. Y. 2007. Development of a method to quantify lysine in small amounts of rice grain. *Korean J. Sanit.* 22:75-84.

Kobue-Lekalake, R. I. 2008. Sensory perception of bitterness and astringency in sorghum. PhD Thesis, University of Pretoria: Pretoria.

Kramer, F. M., Lesher, L. L., and Meiselman, H. L. 2001. Monotony and choice: Repeated serving of the same item to soldiers under field conditions. *Appetite* 36:239-240.

Kroll, J. K. 1990. Evaluating sensory scales for sensory testing with children. *Food Technol.* 44(11):78-86.

Kurien P. P., Narayanaao, M., Swaminathan, M., and Subramanyan V. 1960. The metabolism of nitrogen, calcium and phosphorus in undernourished children; the effect of partial or complete replacement of rice in poor vegetarian diets by kaffir corn (*Sorghum vulgare*). *Br. J. Nutr.* 14:339-345.

Landry, J., and Moureaux, T. 1970. Heterogeneite des glutelines du grain de ranis: Extraction selective et composition en acides amines des trois fractions isolees. Bull. Soc. Chim. Biol. 52:1021.

Lasztity, R. 1984. The Chemistry of Cereal Proteins. CRC Press: Boca Raton, FL. Pp 1-2.

Lawless, K. B., and Heymann, H. 1998. Sensory Evaluation of Food: Principles and Practices. Aspen Publishers: Gaithersburg, ML. Pp 39-49.

Leon, F., Couronne, T., Marcuz, M. C., and Koster, E. P. 1999. Measuring food liking in children: A comparison of non-verbal methods. Food Qual. Pref. 10:93-100.

Leon-Chapa, M. 1999. Methods to improve and measure texture of sorghum cookies. M. S. thesis, Texas A&M University: College Station, TX. Pp 126.

Lindell, M. J., and Walker, C. E. 1984. Soy enrichment of chapatis made from wheat and nonwheat flours. Cereal Chem. 61:435-438.

Lukow, O. M. 2006. Wheat flour classification. Pages 69-86 in: Bakery Products Science and Technology. X. H. Hui, H. Corke, I. De Leyn, W. Nip, and N. Cross, eds. Blackwell Publishing: Ames, IA.

Lungqvist, B. G., Mellander, O., and Svanberg, U. O. 1981. Dietary bulk as a limiting factor for nutrient intake in preschool children: Problem description. J. Trop. Paed. 27:68-73.

Lusas, E. W., and Riaz, M. N. 1995. Soy protein products: Processing and use. J. Nutr. 125: 573S-580S.

Maache-Rezzoug, Z., Bouvier, J., Allaf, K., and Patras, C. 1998. Effect of principle ingredients and rheological behavior of biscuit dough on quality of biscuits. J. Food Eng. 35:23-42.

MacLean W. C., De Romana., Placko R. P., and Graham G. G. 1981. Protein quality and digestibility of sorghum in preschool children: Balance studies and plasma amino acids. *J. Nutr.* 111:1928-1936.

MacLean, W. C., De Romana, G. L., Placko., and Graham, G. G. 1983. The effect of decortication and extrusion on the digestibility of sorghum by preschool children. *J. Nutr.* 113:2171-2177.

Manley, D. 1991. Technology of Biscuits, Crackers and Cookies. 2nd Ed. Ellis Harwood: Chichester. Pp 118-132.

Manohar, R. S., and Rao, H. 2002. Interrelationships between rheological characteristics of dough and quality of biscuits: Use of elastic recovery of dough to predict biscuit quality. *Food Res. Int.* 35:807-813.

Mao, L. C., Lee, K. H., and Erbersdober, H. F. 1993. Effects of heat treatment on lysine in soya protein. *J. Sci. Food Agric.* 62:302-309.

Marcone, F. M., and Kakuda, Y. 1999. A comparative study of the functional properties of amaranth and soy bean globulin. *Nahrung*, 43:S368-373.

Marrero, L. M., Payumo, P. M. Aguinaldo, A. R., and Homma, S. 1988. Nutritional characteristics of weaning foods prepared from germinated cereals and legumes. *J. Food Sci.* 53:1399-1402.

Mashayekh, M., Mahmoodi, M. R, and Enterazi, M. H. 2008. Effect of fortification of defatted soy flour on sensory and rheological properties of bread wheat. *Int. J. Food Sci. Technol.* 43:1693-1698.

Mayer, J. E., Pfeiffer, W. H., and Beyer, P. 2008. Biofortified crops to alleviate micronutrient malnutrition. *Curr. Opin. Plant Biol.* 11:166-170.

McGiure, R. G. 1992. Reporting objective colour measurements. Horticultural. Sci. 27:1254-1255.

McWatters, K. H. 1978. Cookie baking properties of defatted peanut, soybean and field pea flours. Cereal Chem. 55:853-863.

Mela, D. J. 2000. Why do we like what we like? J. Sci. Food Agric. 81:10-16.

Menjivar, J. A., and Faridi, H. 1994. Rheological properties of cookie and cracker doughs. Pages 283-322 in: The Science of Cookie and Cracker Production. H. Faridi, ed. Chapman and Hall: New York.

Mensa-Wilmot, Y., Phillips, R. D., and Hargrove, J. L. 2001. Protein quality evaluation of cowpea based extrusion cooked cereal/legume weaning mixtures. Nutr. Res. 21:849-857.

Mertz E. T., Axtell, J. D., Ejeta G., and Hamaker, B. R. 1993. Development and recent impact of quality protein maize and sorghum. Pages 115-132 in: Cereal Science and Technology Impact on a Changing Africa. J. R. N. Taylor, P. G. Randall, and J. H. Viljoen, eds. CSIR: Pretoria.

Mertz E. T., Hassen M. M., Cairns-Whittern C., Kirleis A, W, Tu L., and Axtell J. D. 1984. Pepsin digestibility of proteins in sorghum and other major cereals. Proc. Nat. Acad. Sci. USA 81:1-2.

Millward, D. J., and Jackson, A. A. 2008. Protein/ energy ratios of current diets in developed and developing countries compared with a safe protein/energy ratio: implications for recommended protein and amino acid intakes. Public Health Nutr. 7:387–405.

Mitaru, B. N., Reichert, R. D., and Blair, R. 1984. The binding of dietary protein by sorghum tannins in the digestive tract of pigs. J. Nutr. 114:1787-1796.

Mohamed, A., Rayas-Duarte, P., and Xu, J. 2008. Hard red spring wheat /C-TRIM 20 bread: formulation, processing and texture analysis. Food Chem. 107:516-524.

Mohsen, M. S., Fadel, H. H. M., Bekhit, M. A., Edris, A. E., and Ahmed, Y. S. 2009. Effect of substitution of soy protein isolate on aroma volatiles, chemical composition and sensory quality of wheat cookies. *Int. J. Food Sci. Technol.* 44:1705-1712.

Moore, S., and Stein, W. H. 1951. Chromatography of amino acids on sulfonated polystyrene resins. *J. Biol. Chem.* 192:663-681.

Moore, S., Spackman, D. H., and Stein, W. H. 1958. Chromatography of amino acids on polystyrene resins: An improved system. *Anal. Chem.* 30:1185-1190.

Mosha, T. C. E., and Benink, M. R. 2004. Protein quality of drum-processed cereal-bean-sardine composite supplementary foods for pre-school age children. *J. Sci. Food Agric.* 84:1111-1118.

Mosha, T. C. E., and Vicent, M. M. 2005. Nutritional quality, storage stability and acceptability of home-processed ready-to-eat composite foods for rehabilitating undernourished preschool children in low-income countries. *J. Food Proc. Preserv.* 29:331-356.

Mossé, J., and Huet, J. C. 1990. Amino acid composition and nutritional score for ten cereals and six legumes or oilseeds: causes and ranges of variations according to species and to seed nitrogen content. *Sci. des Alimentarius* 10:151-173.

Moughan, P. L., and Rutherford, S. M. 2008. Available lysine in food: A brief historical overview. *J. AOAC Int.* 91:901-906.

Mridula, D., Gupta, R. K., and Manikantan. M. R. 2007. Effect of incorporation of sorghum flour to wheat flour on quality of biscuits fortified with defatted soy flour. *Am. J. Food Technol.* 2:428-434.

Mukuru.S. Z., Butler, L. G., Rogler, J. C., Kirleis, A, W., Ejeta, G., Axtell, J. D., and Mertz, E.T. 1992. Traditional processing of high-tannin sorghum grain in Uganda and its effect on tannin, protein digestibility, and rat growth. *J. Agric. Food Chem.* 40:1172-1175.

Muller, O., and Krawinkel, M. 2005. Malnutrition and health in developing countries. *Can. Med. Assoc. J.* 173:279-286.

Munck, L. 1995. New milling technologies and products: Whole plant utilization by milling and separation of the botanical and chemical components. Pages 186-193 in: *Sorghum and Millets: Chemistry and Technology*. D. A. V. Dendy, ed. American Association of Cereal Chemists: St. Paul, MN.

Munoz, M. A., Szczesniak, A. S., Einstein, M.A., and Schwartz, N. O. 1992. The texture profile. Pages 35-51 in: *Manual for Descriptive Analysis Testing for Sensory Evaluation*. R. C. Hootman, ed. American Society of Materials and Testing Publication: Philadelphia, PA.

National Research Council (NRC). 1996. *Guide for the Care and Use of Laboratory Animals*. National Academy of Sciences Press: Washington, DC. Pp 9-137.

National Research Council (NRC). 1995. Nutrient requirements of laboratory animals. National Academy of Sciences Press: Washington. Pp 11-58.

Nnam, N. M. 2001. Comparison of the protein nutritional value of food blends based on sorghum, bambara groundnut and sweet potatoes. *Int. J. Food Sci. Nutr.* 52:25-29.

Nursten, H. E. 1981. Recent development in studies of the Maillard reaction. *Food Chem.* 6: 263-277.

Onis, M., and Blossner, M. 1997. WHO database on child growth and malnutrition. Programme of Nutrition. World Health Organization: Geneva.

Oria, M. P., Hamaker, B. R., and Schull, J. M. 1995. In vitro protein digestibility of developing and mature sorghum grain in relation to α -, β -, and γ -kafirin disulfide crosslinking. *Cereal Chem.* 22:85-93.

Osman, M. A. 2004. Changes in sorghum enzyme inhibitors, phytic acid, tannins and in vitro protein digestibility during Khamir (local bread) fermentation. *Food Chem.* 88:129-134.

Osundahunsi, O. F., and Aworh, O. C. 2003. Nutritional evaluation, with emphasis on protein quality, of maize-based complementary foods enriched with soy bean and cowpea tempe. Int. J. Food Sci. Technol. 38:809-813.

Patel, M. M., and Rao, V.G. 1995. Effect of untreated, roasted and germinated black gram (*Phaseolus mungo*) flours on the physico-chemical and biscuit (cookie) making characteristics of soft wheat flour. J. Cereal Sci. 22:285-291.

Perez, G., Ribotta, P. D., Steffolani, M. E., and Leon, A. E. 2008. Effect of soybean proteins on gluten depolymerisation during mixing and resting. J. Sci. Food Agric. 88:455-463.

Peryam, D. R., and Girardot, N. F. 1952. Advanced taste-test method. Food Eng. 24:58-61.

Piazza, L., and Masi, P. 1997. Development of crispness in cookies during cooking in an industrial oven. Cereal Chem. 74:135-140.

Popper, R., and Kroll, J. J. 2003. Conducting sensory research with children. Food Technol. 57(5):60-65.

Potter, N. N., and Hotchkiss, J. H. 1998. Food Science. Aspen Publishers: Gaithersburg, ML. Pp 381-408.

Pozo-Bayon, M. A., Guchard, E., and Cayot, N. 2006. Flavour control in baked cereal products. Food Rev Int. 22:335-379.

Ramirez-Jimenez, A., Guerra-Hernandes, E., and Garcia-Villanova, B. 2003. Evolution of non-enzymatic browning during storage of infant rice cereal. Food Chem. 83:219-225.

Riblett, A. L., Herald T. J., Schmidt, K. A., and Tilley, K. A. 2001. Characterization of β -conglycinin and glycinin soy protein fractions from four selected soybean genotypes. J. Agric. Food Chem. 49:4983-4989.

Rolls, B. J. 1986. Sensory specific satiety. Nutr. Rev. 44:93-101.

Rooney, L. W., and Miller, F. R. 1982. Variation in the structure and kernel characteristics of sorghum. Pages 143-162 in: Proceedings of the International Symposium on Sorghum Grain Quality. L. W. Rooney and D. S. Murty, eds. ICRISAT: Pantacheru, A. P., India.

Rooney, L. W., and Serna-Saldivar, S. O. 2003. Sorghum. Pages 5370-5379 in: Encyclopaedia of Food Sciences and Nutrition, Vol 8. B. Caballero, C. L. Trugo, and P. M. Finglass, eds. Elsevier Science: Oxford.

Rousseau 2004. Sensory evaluation techniques. Pages 21-36 in: Handbook of Food Analysis. 2nd Ed., Vol. 1. L. M. L. Nollet, ed. Marcel Dekker: New York.

Rowan, A. M., Moughan, P. J., Wilson, M. N., Maher, K., and Tasman-Jones, C. 1994. Composition of the ileal and faecal digestibility of dietary amino acids in adult humans and evaluation of the pig as a model for digestion studies in man. Br. J. Nutr. 71:29-42.

Rutherford, S. M., and Moughan, P. J. 1998. The digestible amino acid composition of several milk proteins: Application of a new bioassay. J. Dairy Sci. 81:909-917.

Rutherford, S. M., and Moughan, P. J. 2007. Development of a novel bioassay for determining the available lysine contents of food and feedstuffs. Nutr. Res. Rev. 20:3-16.

Sablani, S. S., Marcotte, M., and Baik, O. D. 1998. Modeling of simultaneous heat and water transport in the baking process. Lebensm. Wiss. Technol. 31:201-209.

Saleem, Q., Wildman, R. D., Huntley, J. M., and Whitworth, M. B. 2005. Material properties of semi-sweet biscuits for finite element modelling of biscuit cracking. J. Food Eng. 68:19-32.

Saunders, R. M., Connor, M. A., Booth, A. N., Bickoff, E. M., and Kohler, G. O. 1973. Measurement of digestibility of alfalfa protein concentrate by in vivo and in vitro methods. J. Nutr. 103:530-535.

Schaible U. E., and Kaufmann S. H. E. 2007. Malnutrition and infection: Complex mechanisms and global impact. PLoS Medicine 5:e115.

Schutz, H. G., and Pilgrim, F. G. 1958. A field study of food monotony. Psychol. Rep. 4: 559-565.

Senthil, A., Ravi, R., Bhat, K., and Seethalakshmi, M. K. 2002. Studies on the quality of fried snacks based on blends of wheat flour and soy flour. Food Qual. Pref. 13:267-273.

Serna-Saldivar, S., and Rooney, L. W. 1995. Structure and chemistry of sorghum and millets. Pages 69-124 in: Sorghum and Millets: Chemistry and Technology. D. A. V. Dendy, ed. American Association of Cereal Chemists: St. Paul, MN.

Serna-Saldivar, S. O., Abril-Dominguez, J. R., Lopez-Ahumada, G., and Ortega-Ramirez, R. 1999. Nutritional evaluation of table bread fortified with defatted soybean and sesame meals. Arch. Latinoam. Nutr. 49:260-264.

Shetty P. 2006. Malnutrition and undernutrition. Medicine 34:524-529

Shewry, P. R. 2006. Impacts of Agriculture on Human Health and Nutrition: Improving the protein content and quality of temperate cereals: Wheat, barley and rye. Pages 1-21 in: Encyclopaedia of life support systems (EOLSS). M. Welch and I. Cakmak, eds. Eolss Publishers: Oxford. www.eolss.net. Accessed July 2009.

Shewry, P. R. 2009. Wheat. J. Exp. Bot. 60:1537-1553.

Shewry, P. R., Tatham, A. S., Farde, J. S., Kreis, M., and Miflin B. J. 1986. The classification and nomenclature of wheat gluten proteins: A reassessment. J. Cereal Sci. 4:97-106.

Shrestha, A. K., and Noomhorm, A. 2002. Comparison of physico-chemical properties of biscuits supplemented with soy and kinema flours. Int. J. Food Sci. Technol. 37:162-164.

Shull, J. M., Watterson, J. J., and Kirleis, A. W. 1991. Proposed nomenclature for the alcohol-soluble proteins (kafirins) of Sorghum bicolor (L. Moench) based on molecular weight, solubility and structure. *J. Agric. Food Chem.* 39:83-87.

Siegel, P. S., and Pilgrim F. J. 1958. The effect of monotony on the acceptance of food. *Am. J. Psychol.* 4:756-75.

Singh, M., and Mohamed, A. 2007. Influence of gluten-soy protein blends on the quality of reduced carbohydrate cookies. *Lebensm. Wiss. Technol.* 40:353-360.

Singh, R., Singh, G., and Chauhan, G, S. 2000. Nutritional evaluation of soy fortified biscuits. *J. Food Sci.Technol.* 37:162-164.

Sizwe, B., and Nikiwe, N. 2010. Government programmes and policies: Education policy; school feeding scheme. Education and training unit. www.etu.or.za/toolbox/docs/government/feeding.html. Accessed July 2010.

Slade, L., and Levine, H. 1994. Structure-function relationships of cookie and cracker ingredients. Pages 227-252 in: *The Science of Cookie and Cracker Production*. H. Faridi, ed. Chapman and Hall: New York.

Smith, D. M. 2003. Protein separation and characterization procedures. Pages 247-268 in: *Food Analysis*, 3rd Ed. S.S. Nielsen, ed. Academic/Plenum Publishing: New York.

Snyder, H. E. 2003. Soy (soya) beans: The crop. Pages 5379-5383 in: *Encyclopaedia of Food Sciences and Nutrition*. B. Caballero, C. L. Trugo, and P. M. Finglas, eds. Elsevier Science: Oxford.

Stauffer, C. E. 2007. Principles of dough formation. Pages 299-332 in: *Technology of Breadmaking*, S. P. Cauvain, and L. S. Young, eds. Springer Science+Business Media, LLC: New York.

Stipanuk, M. H. 2006. Protein and amino acid requirements. Pages 419-448 in: Biochemical Physiological, Molecular Aspects of Human Nutrition. M. H. Stipanuk, eds. Saunders Elsevier: St. Louis, MO.

Stone, H., and Sidel, J. L. 2004. Sensory Evaluation Practices, 3rd Ed. Elsevier Academic Press: San Diego, CA. Pp 104-110.

Stubenitsky, K., Aaron, J. I., Catt, S. L., and Mela, D. J. 1999. Effect of information and extended use on the acceptance of reduced-fat products. *Food Qual. Pref.* 10:367-376.

Sudha, M. L., Vetrimani, R., and Leelavathi, K. 2007. Influence of fibre from different cereals on the rheological characteristics of wheat flour dough and on biscuit quality. *Food Chem.* 100:1365-1370.

Sulmont-Rossé C., Chabanet, C., Issanchou, S., and Koster, E.P. 2008. Impact of the arousal potential of uncommon drinks on the repeated exposure effect. *Food Qual. Pref.* 19:412-420.

Taha, F. S., and Mohamed, S. S. 2004. Effect of different denaturation methods on lipid-protein complex formation. *Int. J. Food Sci. Technol.* 37:99-104.

Taha, M. R., Majdi, A. A., and Khalil, I. E. 2006. Effect of chickpea, broad bean, or isolated soy protein additions on the physicochemical and sensory properties of biscuits. *J. Food Sci.* 71:S438-S442.

Taylor, J., Taylor, J. R. N., Belton, P. S., and Minnar, A. 2009. Kafirin microparticles: Encapsulation of catechin and sorghum condensed tannins. *J. Agric. Food Chem.* 57:7523-7528.

Taylor, J. R. N. 2004. Grain production and consumption: Africa. Pages 70-78 in: Encyclopedia of Grain Science. C. Wrigley, H. Corke, and C. E Walker, eds. Elsevier Science: London.

Taylor, J. R. N., and Belton, P. S. 2002. Sorghum. Pages 25-82 in: Pseudocereals and Less Common Cereals: Grain Properties and Utilization Potential. P. S. Belton and J. R. N. Taylor, eds. Springer-Verlag: Berlin.

Taylor, J. R. N., and Schüssler, L. 1986. The protein compositions of the different anatomical parts of sorghum grain. *J. Cereal Sci.* 4:361-369.

Taylor, J. R. N., Novellie, L., and Liebenberg, Nv. d. W. 1984. Sorghum protein body composition and ultrastructure. *Cereal Chem.* 61:69-73.

Tecniplast Group. 2010. Metabolic cage for rats. Tecniplast Group: Varese, Italy. www.tecniplast.it/metabolic. Accessed March 2010.

Thompson, J. L., Manore, M. M., and Vaughan, A. V. 2008. The Science of Nutrition. Pearson Education Publishing: San Francisco, CA. Pp 220-259.

Uebersax, M. A., and Occena, L. G. 2003. Legumes: Legumes in the diet. Pages 3520-3528 in: Encyclopaedia of Food Sciences and Nutrition. B. Caballero, C. L. Trugo, and P. M. Finglas, eds. Elsevier Science: Oxford.

UNESCO. 2004. Guidelines to develop and implement school feeding programmes that improve education. UNESCO. www.unesco.org/education/fresh. Accessed August 2010.

UNICEF. 2007. Progress for children: A World Fit for Children Statistical Review. UNICEF, www.unicef.org/progress for children. Accessed August, 2010.

Uruakpa, F. O. 1996. Optimum blending ratio for sorghum-African yam bean food mixture. *Nutr. Res.* 16:747-750.

USDA. 2008. National Nutrient Database for Standard Reference, Release 20. www.nal.usda.gov/fnic/foodcomp/cgi-bin/list_nut_edit.pl. Accessed July 2009.

Van Stuijvenberg, E. M., Kvalsvig, J. D., Faber, M., Kruger, M., Kenoyer, D. G., and Benade, S. A. J. 1999. Effect of iron-, iodine-, and b-carotene-fortified biscuits on the micronutrient status of primary school children: a randomized controlled trial. Am. J. Clin. Nutr. 69:497-503.

Vasconcelos, I. M., Maia, A. A. B., Siebra, E. A., Oliveira, J. T. A., Carvalho. A. F. F. U., Melo, V. M. M., Carlini, C. R., and Castelar, L. I. 2001. Nutritional study of two Brazilian soybean (*Glycine max*) cultivars differing in contents of antinutritional and toxic proteins. J. Nutr. Biochem. 12:55-62.

Vickers, Z., and Holton, E. 1998. A comparison of taste test ratings, repeated consumption, and post consumption ratings of different strengths of iced tea. J. Sensory Stud. 13:199-212.

Vickers, Z., and Holton, E., and Wang, J. 1997. Effect of yogurt sweetness on sensory specific satiety. J. Sensory Stud. 13:377-388.

Villamiel, M. 2006. Nonenzymatic browning of cookies, crackers and biscuits. Pages 433-470 in: Bakery Products: Science and Technology. Y. H. Hui, ed. Blackwell Publishing: Ames, IA.

Vitali, D., Dragojevic, I. V., and Sebecic, B. 2008. Bioaccessibility of Ca, Mg, Mn and Cu from whole grain tea biscuits: Impact of proteins, phytic acid and polyphenols. Food Chem. 110: 62-68.

Vittadini, E and Vodovotz, Y. 2003. Changes in the physicochemical properties of wheat-and soy – containing breads during storage as studied by thermal analyses. J. Food Sci. 68:2022-2029.

Wadud, S., Abid, H., Ara, H., Kosar, S., and Shah, W.H. 2004. Production, quality evaluation and stability of vegetable protein-based baby food. Food Chem. 85:175-179.

Waggle, D.H. Parrish D. B., and Deyoe, C.W. 1966. Nutritive value of protein in high and low protein content sorghum grain and as measured by rat performance and amino acid assays. *J. Nutr.* 88:370-374.

Walker, A. F. 1990. The contribution of weaning foods to Protein-Energy Malnutrition. *Nutr. Res. Rev.* 3:25-47.

Walsh, G. 2002. Proteins: Biochemistry and Biotechnology. John Wiley and Sons: Chichester. Pp 1-47.

Waniska, R. D., and Rooney, L. W. 2000. Structure and chemistry of the sorghum caryopsis. Pages 649-688 in: Sorghum: Origin, History, Technology and Production. C. W. Smith and R. A. Frederiksen, eds. John Wiley and Sons Inc: New York.

Waniska, R. D., Rooney, L. W., and McDonough, C. M. 2004. Sorghum: Utilization. Pages 126-135, In: Encyclopaedia of Grain Science. C. Wrigley, H. Corke and C. E. Walker, eds. Elsevier: Oxford.

Watterson, J. J., Shull, J. M., and Kirleis, A. W. 1993. Quantitation of α -, β -, and γ -kafirins in vitreous and opaque endosperm of Sorghum bicolor. *Cereal Chem.* 70: 452-457.

Weegels, P. L., De Groot, A. M. G., Verhoek, J. A., and Hamer, R. J. 1994. Effects on gluten of heating at different moisture contents. II. Changes in physico-chemical properties and secondary structure. *J. Cereal Sci.* 19:39-47.

WHO. 2007. Protein and Amino Acid Requirements in Human Nutrition: Report of a Joint WHO/FAO/UNU Expert Consultation. WHO Technical Report Series No. 935. World Health Organization: Geneva.

WHO. 2000. Nutrition for Health and Development: A Global Agenda for Combating Malnutrition. Progress Report. World Health Organization: Geneva.

WHO/UNICEF. 1998. Complementary Feeding of Young Children in Developing Countries: A Review of Current Scientific Knowledge. World Health Organization: Geneva.

Wiejzen, P. L. G., Zanstra, E. H., Alfieri, C., and de Graaf, C. 2008. Effects of complexity and intensity on sensory specific satiety and food acceptance after repeated exposure. *Food Qual. Pref.* 19:349-359.

Wikipedia. 2010. Laboratory rat: Albino rat. www.en.wikipedia.org/wiki/Laboratory_rat. Accessed August 2010.

Wolzak, A., Bressani, R., and Brenes, R. B. 1981. A comparison of in vivo and in vitro estimates of protein digestibility of native and thermally processed vegetable proteins. *Plant Foods Hum. Nutr.* 31:31-45.

World Food Programme (WFP). 2009. Home Grown School Feeding: A Framework to Link School Feeding with Local Agricultural Production. World Food Programme: Rome.

World Food Programme (WFP). 2008. Facts and Figures: Hunger Facts. www.wfp.org/about_wfp. Accessed April 2008.

World Food Programme (WFP). 2007. Global School Feeding Gap: School Age children in Hunger Hot Spots. School Feeding Unit, HGSF 3/R. World Food Programme: Rome.

World Food Programme (WFP). 2002. Fortified Blended Foods. World Food Programme, Strategy and Policy Division, Technical Unit (Nutrition). World Food Programme: Rome. www.usaid.gov/our_work/humanitarian_assistance. Accessed August 2009.

World Food Programme (WFP). 2000. School Feeding Handbook. World Food Programme, Rome.

Young, V. R., and Pellet, P. L. 1994. Plant protein in relation to human protein and amino acid nutrition. *Am. J. Clin. Nutr.* 59:1203S-1212S.

Young, V. R., and Pellet, P. L. 1985. Wheat proteins in relation to protein requirements and availability of amino acids. Am. J. Clin. Nutr. 41:1077-1090.

Zandstra, E. H., Weegels, M. F., Van Spronsen, A. A., and Klerk, M. 2004. Scoring or boring? Predicting boredom through repeated in-home consumption. Food Qual. Pref. 15:549-557.

Zandstra, E. H., and de Graaf, C .1998. Sensory perception and pleasantness of orange beverages from childhood to old age. Food Qual. Pref. 9:5-12.

Zhang, H. L., Qiao, S. Y., Chen, X. J., Wang, X., Xing, J. J., and Yin, Y. L. 2005. Effect of soy-bean protein on endogenous ileal lysine loss and amino acid digestibility in growing pigs. Animal Sci. 81:257-264.

Zhao, W., Zhai, F., Zhang, D., An, Y., Lui, Y., He, Y., Ge, K., and Scrimshaw, N. S. 2004. Lysine-fortified wheat flour improves nutritional and immunological status of wheat-eating families in northern China. Food Nutr. Bull. 25:123-129.

Zoulias, E. I., Oreopoulou, V., and Tzia, C. 2002. Textural properties of low fat cookies containing carbohydrate or protein-based fat replacers. J. Food Eng. 55:337-342.

Zydembos, S. E., and Humphrey-Taylor, V. 2004. Cookies, biscuits and crackers: The diversity of products. Pages in: Encyclopaedia of Grain Science. Vol 1. C. Wrigley, H. Corke, C. E. and Walker, eds. Elsevier Science: Oxford. Pp 313-317.

8 APPENDIX

Publications and presentations from this work

Scientific Papers

Serrem, C. A., de Kock, H. L., Taylor, J. R. N. 2011. Nutritional quality, sensory quality and consumer acceptability of sorghum and bread wheat biscuits fortified with defatted soy flour. Int. J. Food Sci. Technol. 46:74-83.

Serrem, C. A., de Kock, H. L., Oelofse, A., Taylor, J. R. N. 2011. Rat bioassay of the protein nutritional quality of soy fortified sorghum biscuits for supplementary feeding of school-age children. In Press, J. Sci. Food Agric.

Conference posters

Serrem, C. A., de Kock, H. L., Oelofse, A., Taylor, J. R. N. 2010. The effect of compositing with soy on the sensory characteristic of sorghum biscuits. Cereal Science and Technology – South Africa (CST-SA) – International Association of Cereal Science and Technology (ICC) International Grains Symposium on Quality and Safety of Grain Crops and Foods. 3-5 February 2010, Pretoria, South Africa. Won 2nd Prize for student posters.

Also includes article:

Serrem, C. A., de Kock, H. L., Oelofse, A., Taylor, J. R. N. 2010. Effect of compositing with soy on the sensory characteristics of sorghum biscuits. Pages 263-267 In: Proceedings of the CST-SA-ICC International Grains Symposium on Quality and Safety of Grain Crops and Foods. M. Labuschagne, and K. G. Duodu, eds. 3-5 February 2010, Pretoria, South Africa. ISBN: 978 0 86886.

Serrem, C. A., de Kock, H. L., Oelofse, A., Taylor, J. R. N. 2010. Protein quality of soy fortified sorghum biscuits. 15th IUFOST World Congress of Food Science and Technology. 22-26th August 2010, Cape Town, South Africa.

Workshop presentation

Serrem, C. A., demonstrated preparation procedure for soy fortified sorghum biscuits at a two day Practical Workshop on Small-scale Processing and Marketing of Oilseeds and Legumes, 25-26 February 2010, Pretoria, South Africa.