

## Recent Investigations into the Toxicity of Known and Unknown Poisonous Plants in the Union of South Africa. XVI.

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All the animals were drenched by means of a stomach tube.

### AMARYLLIDACEAE.

#### *Agave americana L.*

Registered No. O.P. 11035; 11/9/45.

Common names: Agave, American aloe, century plant, "garingboom".

State and stage of development: Fresh green leaves.

The juice expressed from the fresh leaves was very irritant and even caused a burning sensation on the skin.

Rabbit (2.05 Kg.): Received 100 c.c. of the juice twice daily for three days; thus a total quantity of 600 c.c.

From the second day the animal showed anorexia and was listless. From the third day it was paralysed in the hindquarters and as there was no improvement it was killed on the sixth day.

Post mortem appearances: Hyperaemia of the gastric mucosa; liver very light in colour.

### COMPOSITAE.

#### *Nestlera muriculata D.C.*

Registered No.: O.P. No. 8012. 1/8/45.

Common names: Bekkerbos.

Origin: Hanover C.P.

State and stage of development: Dry and in the seeding stage. No hydrocyanic acid was detectable in the plant with and without the addition of emulsin.

Rabbit II (2.05 Kg.): Received 60.0 gm. of the dry plant in three days at the rate of two daily doses of 10.0 gm. each.

The animal developed no symptoms of poisoning.

EUPHORBIACEAE.

*Manihot utilissima* Pohl.

*Registered No.:* O.P. No. 142 and 693; 28/3/45.

*Common names:* Manihot, Cassava. The starch derived from manihot is called tapioca, or Brazilian, Bahia, Rio or Para arrowroot.

*Origin:* Johannesburg.

*State:* The material submitted was collected from a large consignment of imported cassava.

Both specimens contained such large quantities of hydrocyanic acid that it was impossible to utilise the cassava as human or animal food.

After the material had been moistened and placed in an incubator at 45° C. for sixteen hours, both specimens had almost lost all the hydrocyanic acid.

IRIDACEAE.

*Romolea MacOwani* Bkr.

*Registered No.:* O.P. No. 454; 9/4/45.

*Common names:*—

*Origin:* Dordrecht, C.P.

*State and stage of development:* Fresh bulbs and leaves with flowers, planted in soil.

*Rabbit A* (2.5 Kg.): Received 25 gm. of the fresh bulbs with leaves at 3.30 p.m. on 9/4/45 and 30 gm. at 8 a.m. on 10/4/48.

The animal developed no symptoms of ill-health.

LABIATEAE.

*Salvia runcinata* Linn. f.

*Registered No.:* O.P. No. 1187; 19/4/45.

*Common names:* Wild salvia, "wilde salie".

*Origin:* Armoedsvlakte Research Station, Vryburg. C.P.

*State and stage of development:* Fresh and in the flowering stage.

*Sheep No. 72059* (35 Kg.): 500 gm. of the fresh leaves at 8.30 a.m. on 19/4/45 and another 500 gm. at 3.30 p.m.

20/4/45: Appears normal; another 500 gm. of fresh leaves.

21/4/45: Appears normal; 400 gm. of wilted leaves.

At no time did the animal show any symptoms of ill-health.

No hydrocyanic acid was detectable in the fresh or wilted leaves with and without the addition of emulsin and chloroform.

Hindmarsch (1937) describes poisoning with *Salvia coccinea* in a yearling steer, while Williams and Hines (1939-1940) report that *Salvia reflexa* is poisonous owing to its high nitrate content (5 per cent. calculated as  $\text{KNO}_3$  on a dry weight basis). With this information at our disposal the nitrate content of *Salvia runcinata* was determined and found to be 0.031 per cent., expressed as nitrate, on a dry weight basis.

LILIACEAE.

*Scilla Sp.*

Registered No. 1191; 20/4/45.

Common names: Wild Squill.

Origin: Armoedsvlakte Research Station, Vryburg. C.P.

State and stage of development: Fresh bulbs with fresh leaves and no flowers.

Rabbit VII (2.6 Kg.): Received 70.0 gm. of the fresh bulbs with leaves in 4 days at the rate of two daily doses of 10.0 gm. each.

Rabbit VIII (2.5 Kg.): Received twice the amount of the fresh bulbs with leaves over the same period as rabbit VII.

No symptoms of disease were noticed at any time.

ORCHIDACEAE.

*Lissochilus Buchaninii Reichb. f.*

Registered No.: O.P. No. 23458; 15/2/45.

Common names:—

Origin: Eshowe.

State and stage of development: Fresh roots with decomposed leaves.

Sheep 72059 (40 Kg.): Received 6.4 Kg. of the fresh roots in four days at the rate of two daily doses of 800 gm. each.

At no time did the animal show any symptoms of poisoning.

SOLANACEAE.

*Physalis minima L.*

Registered No.: O.P. No. 6603; 9/7/45.

Common names: Wild gooseberry, "wilde appelliefie", "Kalkoengif".

Origin: Rustenburg, Transvaal.

State and stage of development: mature gooseberries heavily infected with *Fusarium moniliforme*.

No hydrocyanic acid was detected in the mature berries mixed with emulsin.

Sheep 64102 (58 Kg.): Received 6.825 Kg. of the above berries in the course of four days. The animal suffered no ill-effects.

FUNGI.

Yellow mealie meal heavily infected with *Fusarium moniliforme*.

Registered No.: O.P. 5105; 19/6/45.

Origin: Bethal district.

Rabbit 16 (2.2 Kg.): Received 220 gm. of the above meal in 6 days at the rate of two daily doses of 20 gm. each.

Rabbit A (2.25 Kg.): do.

Sheep 72211 (43 Kg.): Received 300 gm. of the meal in one dose. Within sixteen hours the animal showed a very severe diarrhoea, but recovered in two days.

Sheep 66845 (45 Kg.) and Sheep 66521 (70 Kg.): Each received 700 gm. of the meal in four days at the rate of two daily doses of 100 gm. each.

At no time did the two rabbits and sheep 66845 and 66521 develop any symptoms of ill-health. Sheep 72211 developed diarrhoea, most probably as a result of introducing into it within a very short while such a large quantity of meal. This has been our experience in many other experiments with meal.

SUMMARY.

Drenching experiments with eight suspected poisonous plants and one specimen of fungus-infected mealie meal were conducted upon rabbits and sheep. The only positive result achieved was with *Agave Americana* and, even in this case, it cannot be stated definitely that the paralysis developed by the rabbit was caused by this plant, as conclusions drawn from an experiment conducted on a single animal may not be reliable.

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