the cells store this substance when calcification does not or cannot take place.

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Electrophoretic Patterns of the Serum Proteins of Sheep infected with *Hæmonchus contortus*

THE subcutaneous injection of living *H. contortus* into worm-free sheep appeared to provide partial protection against subsequent challenge[1]. Changes in the electrophoretic pattern of the serum proteins might be expected[2–6], and the appearance of the pattern has been followed.

Sera from sheep, untreated control (3), injected with dead larvæ (3), and injected with live larvæ (3) were collected prior to injection, after two injections and subsequent to challenge. No change in the electrophoretic pattern by filter paper electrophoresis was apparent. In a more detailed quantitative study by column electrophoresis[7] two of the animals infected with live larvæ showed a slight (1 per cent) increase in β-globulin. No increase in γ_1- or γ_2-globulin was observed.

The experiment was repeated with a further six sheep all of which became refractory to re-infection as a result of successive injections followed by challenge doses. The electrophoretic patterns of the serum proteins from three animals showed a pronounced intensification of the β-globulin. There was a less-marked change in one animal; and the pattern in the two others remained unchanged.

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Pharmacology of a Tranquillizing Principle in *Paspalum scrobiculatum* Grain

Paspalum scrobiculatum Linn. (Fam. Gramineae; name in Marathi language, *harik*) is cultivated in various parts of India for the grain, which forms the staple diet of the poor rural population. One variety of this plant yields a toxic crop after a favourable rainfall. The toxin is believed to reside in the husk of the grain. The grain of such a crop is detoxified before use by a special process.

The grain was kept in ethanol at room temperature for 1–2 days. The ethanol extract was evaporated to dryness by heating on a water-bath. The dry residue was thoroughly mixed with dilute hydrochloric acid. The dilute acid was then separated from the undissolved portion and dried by heating on a water-bath. The residue or active fraction was dissolved in distilled water before use.

The original active substance is soluble in boiling water, acidified water, ethanol, chloroform and ether. It can be partly extracted from alkaline aqueous phase by ether. Thus it behaves like an alkaloid. It is biologically active after keeping in strongly acidic or alkaline media even at 100° C. Aqueous solution of the active fraction (which appears crystalline under the microscope) gives green fluorescence in ultra-violet light. Two samples of grain gave yields of 0·025 and 0·066 per cent of the active fraction respectively. The active fraction does not give the colour reaction suggested by Sundaram Ayyar and Narayanaswamy[3]. (In their animal experiments those authors observed only tremors and death.)

Various samples of grain (comprising from 1 to 50 gm.) and the various fractions of extraction were added to the diet of 11 dogs in 53 experiments. The active fraction, prepared from samples of 1–50 gm. of grain, was also administered by intravenous or intraperitoneal injection into 6 dogs in 33 experiments.

Oral administration produces tranquillity and lack of interest in the environment. The dogs sit quietly, crossing the forelimbs and looking vacantly into space. Hostile dogs become much less aggressive. Larger doses cause tremors, rigidity of face, trunk and limbs not unlike human Parkinsonism. There was no miosis of the eye in these animals. The effects usually persist for 6–8 hr.

In 5 dogs and 2 cats, after anæsthesia, intravenous injection of the active fraction did not produce any relevant change in blood pressure and respiration, except depression of the carotid sinus reflex in 2 dogs and 1 cat.

In 10 rabbits, 11 guinea pigs, 4 cats and 21 albino rats, the active fraction produced definite tranquillity. In rabbits larger quantities produce clonic convulsions and death.

The effect of the active fraction on hexobarbitone sleeping time was studied in mice, following the technique of Brodie *et al.*[1]. The hexobarbitone sleeping period was significantly (*t*-test, $P < 0{\cdot}01$) prolonged in mice after injection of the active fraction (Table 1).

Like reserpine and chlorpromazine, the active fraction produces tranquillity and symptoms of 'Parkinsonism' in dogs. Unlike chlorpromazine, reserpine produces parasympathomimetic effects and release of 5-hydroxytryptamine from the central nervous system. The active fraction does not produce clear-cut parasympathomimetic effects (such as

Table 1. HEXOBARBITONE SLEEPING PERIOD IN MICE
Hexobarbitone, 100 mgm./kgm. intraperitoneally. Active fraction given ½ hr. before hexobarbitone

Drug	Source of active fraction	Sleeping time (min. ± *S.D.*)	No. of mice used
Control (hexobarbitone)		23 ± 6·5	17
Active fraction + hexobarbitone	6 gm. grain	47 ± 23·4	6
	12 gm. grain	101 ± 38·0	14
	24 gm. grain	123 ± 12·9	7
Active fraction + hexobarbitone		53 ± 8·3	12
Active fraction + hexobarbitone 2 days later		50 ± 11·3	11