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Abstracts of Ph. D. Thesis

"Some Pharmacological Studies on the isolated principles of *Leptadenia-reticulata.*"

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The author in his previous work established for the first time that *Leptadenia reticulata* (crude) had lactogenic effect on sheep, goats, cows, buffaloes and on some clinical cases of agalactia in cattle. Preliminary studies on pharmacognosy, chemistry and toxicity were also done (Anjaria, 1965). The present work was undertaken in an attempt to isolate and type the non-saponifiable principles from *Leptadenia reticulata*, and to assess the effects of *Leptadenia reticulata* (crude) Lr., and the stigmasterol and fraction C (composite fraction containing non-saponifiable principles) isolated from Lr. on egg yield in culled hens, on lactogenesis in rats and on reproductive and endocrine organs in rats.

Chemical :

A short cut method for the isolation of phytosterols and other non-saponifiable principles present in *Lr.* plant has been devised. The mothod involves direct saponification of crude plant and separation of pyhtosterols by phase difference solvents. The method is economic, easy, and gives a good yield. Stigmasterol and tocopherols were isolated in pure form, typed and their identity was confirmed.

Biological :

Poultry : 66 mg and 153 mg of crude Lr/bird/day administered for 30 days to culled hens did not produce any effect on egg yield. Dose levels of 211 mg/bird/day administered for 30 days and 992 mg/bird/day administered for 15 days produced 15% (not significant) and 18% (significant) increase in egg yield respectively. The dose of 216 mg/bird/day administered for 30 days produced 3% (not significant) increase in egg yield. Stigmasterol in the dose of 0.084 mg/bird/day and fraction C 3 mg/bird/day administered for 15 days produced 39% (significant) and 2.2% (not significant) increase in the egg yield respectively in 68 weeks old culled hens.

Cows : Lr. (crude) administered to five cows in the dose of 1.5. g/cow/b.d. for 15 days produced an increase in milk yield in four out of five cows with a net gain of 10.5% (not significant)

Lactating rats : Administration of stigmasterol (S) and fraction C(F) to lactating mother rats in different doses for 20 days produced increase in pup weights and decrease in body weights of mother rats. Further the secretary rating, the parenchyma, percentage and glycogen and protein contents of the mammary tissue of mother a rats were increased. S and F treatment were almost equi-effective although the results with S treatment were more consistent.

Cycling rats : Administration of S and F in different doses for 20 days to cycling rats produced increase in the number and weights of corpora lutea and weights of uteri, pituitaries and ardnals. The ascorbic acid content of adrenal glands was increased but the cholesterol content was not affected. The glycogen and protein contents of non-lctating mammary

tissue were increased but tissue proliferation and mammogenesis were not noticed on histological examination. Histological examination of uteri indicated that the treatments induced oestrogenic activity, this finding is supported by increase in uterine weights (vide supra). Thus the treatments had oestrogenomimetic effect on the reproductive system.

Stigmasterol isolated from Lr and the reference standard stigmasterol (Calibiochem Lab, U.S.A.) were equi-effective.

Weaned female and male rats : Administration of S and F in different doses for 75 days to weaned female and male rats produced decrease in body weights in both sexes. The decrease in body weights in males was greater. Biometric measurements were not effected. The time of vaginal opening in females was also not effected.

Pregnant rats : On mating previously treated male and female rats (under weaned female and male rats), no change in conception time, fertility, litter size and litter weight was observed.