GAU Res. J. 1977, 2 (2): 129-130

Studies on *Leptadenia reticulata*: Effects on Some Reproductive and Growth Parameters of Rats

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Atharva Veda and Ayurvedic literature have described 'strength giving' as one of the properties of *Leptadenia reticulata* (Lr). Experiments were therefore designed to obtain a preliminary assessment of this property and effect of puberty in females, as the drug has also shown some estrogen like property (Anjaria *et al* 1973 & 1975).

Stigmasterol (S) (Anjaria *et al* 1974) and fraction C (F) containing all non-saponifiable material (Murthy & Sheshadhri, 1944) isolated from duly authenticated *Lr* were used in the doses of 0·0016 (S1), 0·0032 (S2), 0·0132 (S3), 0·0528 (S4) and 0·2122 (S5) of S and 0·0056 (F1), 0·0112 (F2), 0·045 (F3), 0·180 (F4) and 0·720 (F5) of F mg/rat/day orally once daily for 75 days in weaned rats and for 7 days in pregnant rats. S and F were dissolved in peanut oil, that 0·3 ml represented one dose. The doses S2 and F2 were omitted after pilot screening controls received plain peanut oil similarly.

Expt. 1: *Weaned rats:*—Wistar weaned females (27) and males (36), 25-30 days old, weighing 35-36 g were randomly alloted to nine groups of male (4 each) and female (3 each), housed in separate cages. Each group received S and F treatments in doses indicated *vide supra* and following observations were recorded.

Weight gains: body weights were recorded every third day to 1 g sensitivity *Biometry:* body measurements of Front limb, Hind limb, Head, Trunk and Tail were recorded every 7th day during the treatment and *Time of Vaginal Opening:* Starting from the day of the treatment daily observations were made till the day of vaginal opening.

Number of days taken for vaginal opening from birth did not differ significantly with any treatment (C. 39·03, S1:47, S3:44·3, S4:44·6 S5:44·3, F1:45, *F3:45·6, F4:37·6, F5:46). However, the* arithmetic mean values were suggestive that in the treated animals the time was delayed by about 6 to 8 days.

Percent variation in body weights of females was observed as, S1:+6·8, S3:+16·2, S4:+2·2, S5:—4·1, F1:—15·4, F3:—9·6, F4:—28·6, F5:—33·8, compared to controls. The results showed significance but were not so at critical difference level and found to be almost equieffective. Arithmetic mean values were however, suggestive that there was progressive fall as the dose of F increased.

Per cent variation in body weights

(Received on Aug., 25, 1976)

of males was observed as; S1:—81·1, S3:—33·8, S4:—92·4, S5:—68·8, F1:—48·4, F3:—70·1, F4:—152·8, F5:—167·1 compared to controls. Treatments produced a steady fall ranging from 33·8% to 167·1% variations were significant and treatments S4, S5, F4 and F5 were equieffective.

None of the treatments produced any effects on the biometrics. Observations on body-weights indicate that as the doses increased the fall in body weight was more.

Expt. 2 *Pregnant rats:* All the males and females used for Expt. 1 were taken up on discontinuation of the treatments on 75th day as they reached puberty. 3 females and one male of same treatment groups were caged together. Vaginal smears were recorded to see sperm positive every morning and such females were seperated and labelled as pregnancy day 1. Pregnant females were again treated from 17th day of pregnancy till littering and litter size and weight were recorded.

Time of conception and littering were found to be variable with different treatments. Mean litter size (first figure) and mean litter weight (in g in parenthesis) were observed as; C:7·6(29·5), S1:7·3 (39·0), S3:9·3 (48·3), S4:10·5(51·4), S5: 8·6(46·6), F1:5·6 (28·0), F3:9·0 (43·6), F4:5·6 (30·6), F5:7·3 (37·0). The variations were not significant although the arithmetic means for litter weights from mothers given S3, S4, S5 and F3 treatments appear to be higher. Prolonged treatment had practically no effects on the fertility, litter size, and litter weights, and it was observed that the animals conceived at the scheduled time and conception rate was not affected.

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