

THE EFFECT OF TESTOSTERONE ON FEMALE GECKO *HEMIDACTYLUS FLAVIVIRIDIS*

While the influence of testosterone on the morphology and physiology of secondary sex organs in male lizards is well documented¹, its effect on reproductive system in female lizards remains poorly known. In a pilot investigation on the hormonal control of sloughing in the house gecko, *Hemidactylus flaviviridis*, an interesting hitherto unreported effect of this steroid both in oil and saline suspension administered in the lizard was noticed.

20 female geckos, *H. flaviviridis* (65 to 70 mm SVL, average weight 8 g) collected from different parts of Jammu City (J and K State) were acclimated to the laboratory conditions at $30^{\circ} \pm 2^{\circ} \text{C}$ for 2 weeks before the start of the experiment. The lizards were divided into 4 groups of 5 each. In group I, the lizards were given injections of 0.18 mg/g b. wt. of testosterone propionate (BDH) in 0.05 ml of mustard oil. Group II lizards received 0.05 ml of oil alone. Group III lizards received 0.09 mg/g b. wt. of testosterone propionate suspension (Micryston, LAB, London) in 0.9% saline (0.05 ml). Group IV received only 0.05 ml of 0.9% saline. Each injection was given intramuscularly at the base of the tail on every alternate day.

Results

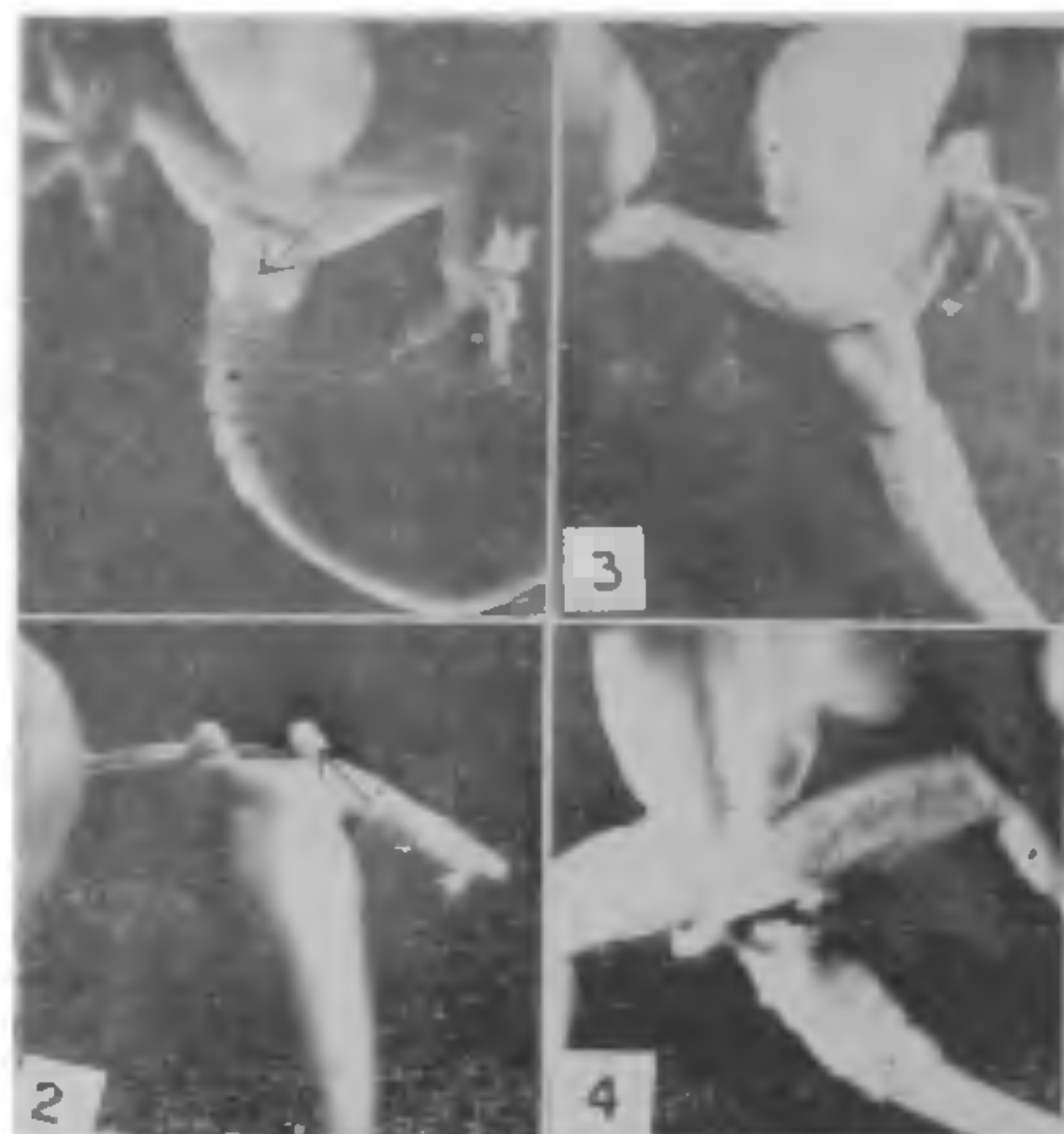
Lizards receiving no treatment or injections of only the vehicle of the drug did not differ in any respect. The base of the tail in the female gecko (*H. flaviviridis*) is more or less flat ventrally and bears a pair of small transversely oval openings of cloacal sacs close behind the cloacal aperture. Following androgen administration, 4 of the 5 group I geckos developed in 10 days the 5th on 17th day of treatment, two longitudinally oval prominences (Fig. 1) along the ventral aspect of the base of the tail in alignment with the cloacal sac openings referred above. The prominences, which are separated by longitudinal depression in between them, reached their maximum size ($6 \times 3 \text{ mm}$) by the 20th day of the treatment (i.e., after a total of 1.8 mg of testosterone had been injected in each lizard). Each swelling was solid to feel and upon gentle pressing at its hinder end, a 4 mm long solid structure (Fig. 2) resembling the hemipenis of a normal male house gecko, everted from each swelling through the opening of the cloacal sac.

In the group III experiment, the structural modifications (Figs. 3 and 4) similar to those described under experiment I were noticed in all the lizards a week too soon. A marked discoloration of the ovarian and oviductal eggs was observed in all the hormone treated lizards of groups I and III.

Discussion

Earlier reports indicate an elevated feminization effect of testosterone propionate upon female lizards

through a stimulated growth and hypertrophication of oviducts^{3,6} and ovarian hypertrophy with increased ovular productivity⁵ in female reptiles. The only previous report⁷ of a tendency towards masculinization under the influence of testosterone propionate in a lizard does not provide any specific detail of the changes effected.



FIGS. 1-4. Fig. 1. Ventral view of the cloacal region of the female house gecko, *Hemidactylus flaviviridis*, treated with testosterone propionate in oil, showing the prominences of the two sides and the depression in between (arrow). Fig. 2. The same specimen showing the induced hemipenis (everted) with slightly swollen head (arrow). The male organs were developed in 20 days of treatment. Fig. 3. Ventral View of the cloacal region of female house gecko, *H. flaviviridis*, treated with testosterone propionate saline suspension, showing swellings developed at the base of the tail. Fig. 4. The everted hemipenis of the female house gecko of Fig. 3, developed within 14 days under the effect of exogenous treatment of the androgen.

Successful induction of the development of a hemipenis albeit non-functional, in female house gecko through exogenous treatment with testosterone, the principal androgen in reptiles together with the observation of adverse effect on the eggs in the effected females evidently controverts the earlier reports of an elevated feminization effect of the androgen in these vertebrates. The above results, however, favour the assumption that testosterone, although reported to be elaborated also in reptilian ovaries^{1,2} may not be elaborated in sufficient titer to have any discernible effect on the genital rudiments of the alternate sex in female lizards. A high systematic dose as the one

given above, obviously is required to elevate vascular concentration of the hormone to effective levels in bringing forth a masculinization effect of the steroid in females, as reported here.

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TWO NEW COLLATERAL HOSTS FOR *PSEUDOMONAS SOLANACEARUM*

Pseudomonas solanacearum Smith the causal agent of bacterial wilt disease of Solanaceous crops is known to attack a number of host plants belonging to different families^{1,3,4}. During the routine surveys at Indian Institute of Horticultural Research Farm, Hessara-ghatta, Bangalore, two hosts, viz., *Lagasca mollis* Cav. and *Solanum khasianum* Clarke belonging to *Compositae* and *Solanaceae* families, respectively, were noticed showing wilt symptoms in wilt sick plots of tomato and brinjal. Infected plants of both the hosts showed profuse bacterial streaming in clear water from the cut ends.

The bacterium was isolated on Triphenyl Tetrazolium Chloride agar medium². The pathogenicity was confirmed on their respective hosts by stem inoculation⁵ with 48 hrs old cultures having inoculum concentration of 10^7 cells/ml. These cultures were also found pathogenic on tomato (cv. Pusa Ruby) and brinjal (cv. Pusa Purple Long). The disease symptoms appeared after 3 weeks of transplanting in bacterial sick plots in both the hosts. The bacterial wilt was more severe during 12th week in the case of *S. khasianum*. *L. mollis* was also recorded as symptomless carrier for *P. solanacearum*. This is the first report on the occurrence of a bacterial wilt disease on these two hosts.

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ACAPHYLLISA PARINDIAE, A NEW ERIOPHYID MITE PEST OF TEA

OVER the years, mite pests have increased in severity on tea plants in Southern India. Two eriophyid mite species are already recorded, the purple mite (*Calacar carinatus*) being known to occur in a severe form since extensive use of copper fungicides began (Venkata Ram⁴) following the incursion of blister blight into South India in 1946. The second eriophyid species, *Acaphylla theae*, commonly known as the pink mite, was reported for the first time in South India during 1966 (Padmanaban²), although it is very likely that its occurrence escaped detection for quite some time, judging by its heavy incidence in most tea areas of South India, soon after its presence was documented. We now report a hitherto unrecorded eriophyid mite on tea.

The new mite pest was first observed in 1977, occurring along with the pink mite (Rao³), but as the numbers of the former were low, a definite separate identity could not be established; the new pest was considered to be a bio-type of the pink mite. In 1978 the population of the new eriophyid mite increased to an extent that several collections were possible for morphological studies. We had referred specimens to Mr. H. H. Keifer in USA, an authority on eriophyid mites, for his expert opinion and he has identified this mite as *Acaphyllisa parindiae* (Keifer¹).

It is proposed to give the common name 'pale mite' to *Acaphyllisa parindiae* since it is pale whitish-yellow in colour. The 'pale mite' is shorter than the pink mite and much broader at the anterior end, being more like a turnip (Fig. 1). The mite is fusiform, body flattened with a broad and round anterior portion and a 'v' shaped abdominal portion. The nature of damage is similar to that caused by the pink mite;