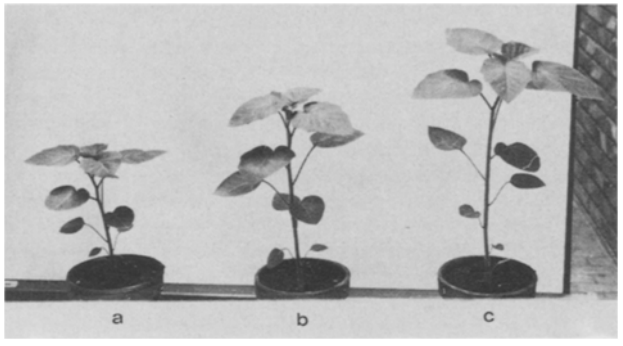
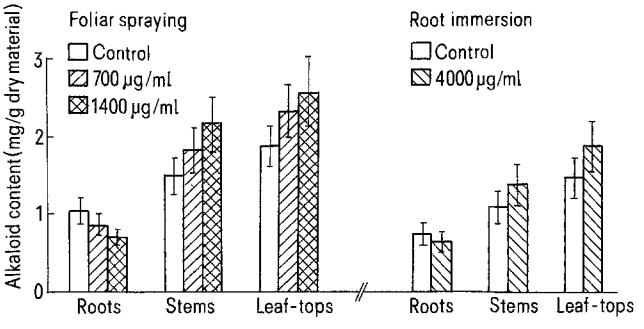


Figure 1. Effects of phthalimide on the vegetative growth of *D. metel* L. The plants were treated by foliar irroration at 10 and 20 days after transplanting (for details see text). a, control; b, 700 µg/ml; c, 1400 µg/ml.



Vertical bars = SE, n = 5.

Figure 2. Effect of phthalimide on alkaloid content (total alkaloids calculated as hyoscyamine) of *D. metel* L. plant organs. The determinations were made on pooled samples of four plants per group.

As shown in figure 2, PTL-treatment stimulated alkaloid formation in the aerial parts of *D. metel* plants. On the other hand, in the roots the total content of the active principles declined. In any case, however, the induced decrease was lower than the increase that resulted at stem and leaf-top levels. The effects were dose dependent and the major increase was obtained in the plants that were sprayed with 1400 µg/ml of PTL. From the above results it may be concluded that PTL treatment has a stimulatory effect on the vegetative growth of *D. metel* that is accompanied by an augmented synthesis of tropane alkaloids. It is well established that in the herbaceous *Datura* the active principles are synthesized mainly in the roots, from which they are translocated to the aerial parts[5]. In our case, the observed decrease of the alkaloids in the roots and the increase in the leaves and stems following PTL-treatment led to the conclusion that in *Datura metel* the growth regulator stimulates the formation of alkaloids in the roots and also stimulates the transportation of these metabolic products to the aerial parts of the plant, where they accumulate.

On the basis of our data it is not possible to explain how PTL induces these effects. The mechanism of action of PTL is completely unknown and its interaction with the metabolic processes of the plant is still to be studied. Furthermore, any comparison with other tested compounds is difficult, since the responses of the genus *Datura* to the various tested plant growth regulators are very variable depending upon the species, the nature and the concentration of the chemical applied, the method and frequency of application, the stage of plant development when the applications are made and the period of time which has elapsed between the time of application and the harvest[5,6]. However, whatever the action mechanism of PTL in *D. metel* may be, the results here reported are to be considered of some interest, as a stimulatory effect on growth is rarely accompanied by a significant augmentation of alkaloid content in *Datura*[7-9].

So far, the results here reported are encouraging and this study gave convincing evidence for the usefulness of the application of PTL to *Datura metel*.

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Karyotypes of two species of Insectivora from Taiwan (Insectivora, Soricidae)

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Summary. The karyotypes of two Insectivora species from Taiwan are described here for the first time. *Soriculus caudatus fumidas* has 2n = 40 chromosomes, FN = 52 and *Anourosorex squamipes yamashinai* has 2n = 50 chromosomes, FN = 96. For *A.s. yamashinai* the G- and C-banding pattern are presented.
Key word: Karyotype; G-banding; C-banding; Insectivora.

The genus *Soriculus* consists of about six species distributed over Bhutan, Kumaon, Sikkim, Nepal, China, North Burma, Tonkin and Formosa. The genus *Anourosorex* consists of a single species only ranging from Indo-China to Formosa[2]. No species of either genus has been karyotyped so far. The present paper reports the karyotypes of *Soriculus caudatus fumidas* and *Anourosorex squamipes yamashinai*.

Materials and methods. Soriculus caudatus fumidus and *Anourosorex squamipes yamashinai* collected from Mt. Ari, Taiwan were used for the present study. They were classified following the checklist of Ellerman and Morrison-Scott[3]. Cytological preparations were made from primary lung tissue cultures using the standard air drying method. The G- and C-band techniques of Seabright[4] and Sumner[5] were applied.

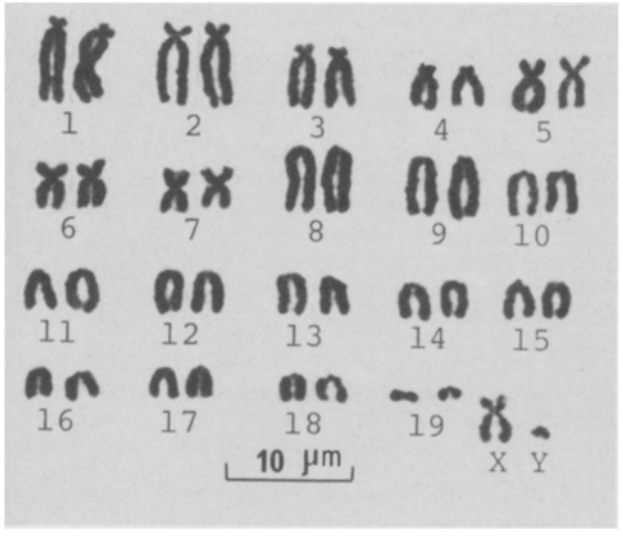

Figure 1. Karyotype of a male *Soriculus caudatus fumidus* (2n = 40, FN = 52).

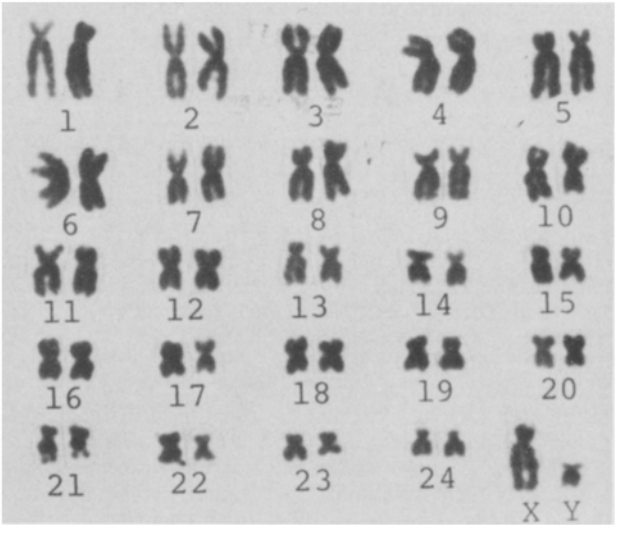

Figure 2. Karyotype of a male *Anourosorex squamipes yamashinai* (2n = 50, FN = 96).

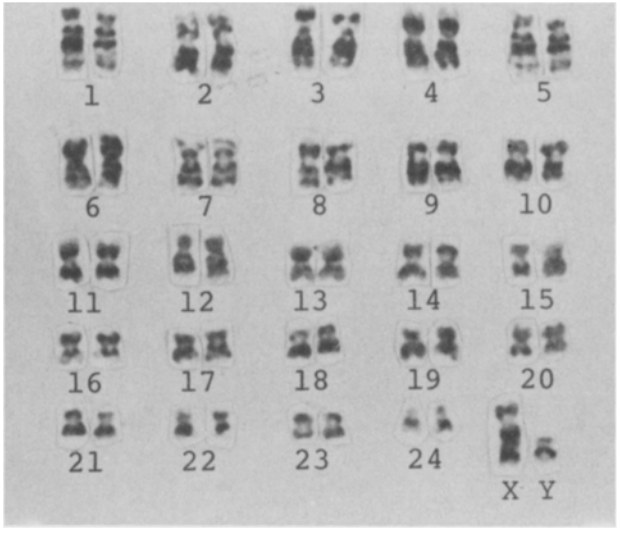

Figure 3. G-banded karyotype of a male *A.s.yamashinai.*

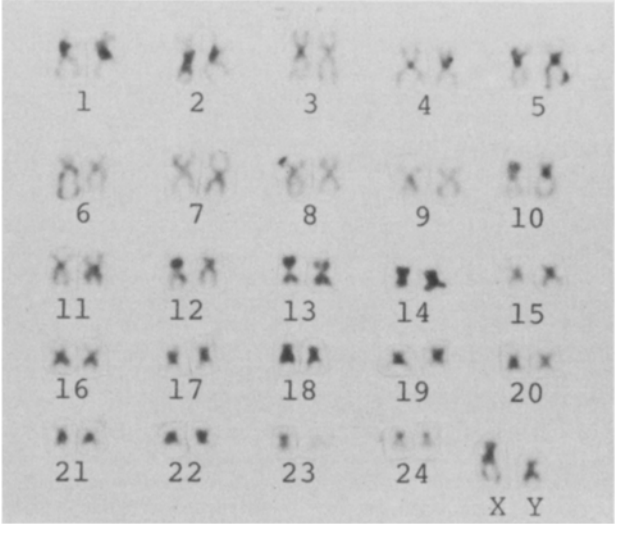

Figure 4. C-banded karyotype of a male *A.s.yamashinai.*

Soriculus caudatus fumidus: The diploid chromosome number is 40, with 19 pairs of autosomes and one pair of sex chromosomes (fig. 1). The autosomes consist of four pairs of subtelocentrics (No. 1–4), three pairs of meta-submetacentrics (No. 5–7), and 12 pairs of medium to small acrocentrics (No. 8–19), FN being 52. The X chromosome is a medium sized submetacentric chromosome, while the Y appears to be the smallest of the acrocentric chromosomes. The karyotype of this species is similar to that of *Crocidura dsinezumi chisai*[6,7], with the exception of the Y chromosome.

Anourosorex squamipes yamashinai: The diploid number is 50, with 24 pairs of autosomes and one pair of sex chromosomes (fig. 2). The autosomes consist of 24 biarmed pairs (No. 1–24), FN being 96. One pair of submetacentrics has a secondary constriction in the long arm (No. 21). The X is a large submetacentric chromosome and the Y is a small submetacentric chromosome. The G-band pattern of the chromosomes is shown in figure 3. There are enough differences to allow easy identification of each autosome. Figure 4 shows the C-banding pattern of *A.s.yamashinai.* Of the 24 autosome pairs of this species, the pairs 13, 14, 18 and 22 are darker stained than the other ones. The pairs 1–5, 10–12 and 15–24 have small C-bands, while pairs 3, 6, 7, 8 and 9 have no distinct C-bands at all. The X chromosome has a C-band in the centromeric region, while the chromosome is entirely and intensely stained.

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