Sand bathing behaviour of Indian gerbil *Tatera indica indica* Hardwicke

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Abstract. The Indian gerbil, *Tatera indica indica* Hardwicke, bathes by alternately rubbing its flanks (side-rubs) in the substrate, such as sand. Bathing frequencies are ordinarily low; but significant increments follow modifications made in pelage condition. When these are asymmetrical, more actions are directed towards the treated than the untreated side. Evidently, peripheral input regulates the behaviour.

Keywords. Sand bathing; side rubs; ventrum drag; coat care; *T. indica indica*.

1. Introduction

Most rodents possess an integrated system of behaviour for coat care (Griswold et al 1977). This includes washing of face, grooming and scratching (Barnett 1975). It is, however, observed that a number of species, particularly heteromyids and gerbils, bathe in substrates such as sand or dust to dress their fur (Eibl-Eibesfeldt 1951; Eisenberg 1963).

Sand-bathing behaviour of Indian gerbil, *Tatera indica indica* Hardwicke has however, not been studied. Results of experiments designed to study it are discussed here.

2. Material and methods

Adult gerbils trapped from fallow lands around Aligarh City were housed separately in wire-mesh enclosures (1.32×1×0.32 m). Wooden nest-boxes with paper strips were supplied for nesting; sand in dissection trays was given for bathing. The gerbils were fed on a mixed diet of cereals and vegetables; water was given *ad lib*. The experimental subjects were released in an all-glass aquarium (0.9×0.45×0.35 m) with a 10 cm layer of sand for substrate. The substrate was changed after each test. The aquarium was placed in a room fitted with 60W red bulbs for lighting. The observer sat at a distance of 2 m from the glass-front.

2.1 Experimental procedure

As the gerbils are nocturnal, all tests were made early in the activity period (1800—1930 hrs). Subjects were observed for 10 min intervals; actions were counted manually and timed by stop-watch.

The subjects were included at random in bisexual groups. Except for one group (controls 20 gerbils), gerbils of the other groups were tested after one of the following pre-treatments.
(a) **Deprivation treatment:** The sand-trays were removed for a week and the gerbils were individually studied.

(b) "**Wetting**" of pelage: Gerbils selected for this treatment were showered with water and observed in the test arena.

(c) **Application of oil to pelage (symmetrical modifications):** Symmetrical changes in pelage condition were made by applying 10 drops of lubricating oil to both the right and left sides of each subject.

(d) **Application of oil to pelage (asymmetrical modifications):** Oil drops were again used to alter the pelage on (i) right side only, (ii) left side, (iii) back and (iv) ventrum of gerbils belonging to four separate groups.

The results were statistically analyzed according to methods described by Bailey (1959) and Lehner (1979).

### 3. Results

The results are presented in table 1.

#### 3.1 Description of movements

As observed, the sand-bathing behaviour of *T. indica* consisted of 'side-rubs'. It included well-coordinated movements or alternate extension and flexion of the body. These occurred rapidly as the gerbil shifted from one side to other. The two sides were thus attended alternately.

Another component identified was 'ventrum-rub' often displayed by male gerbils. It involved rapid extension and flexion of the body in a 'stretching' position. Lowering of the body on the substrate and dragging it in a forward direction, occurred separately from ventrum-rub. This did not involve any stereotype actions. Rollings on back were not seen.

#### 3.2 Bathing frequencies

The untreated subjects released into the test-arena, were observed to bathe between bouts of exploratory activity. The number of actions was, however, limited to two at the most, in a 10 min observation period.

#### 3.3 Relative frequencies after deprivation

The gerbils denied access to sand for a week displayed relatively more bathing by side-rubs than controls (Wilcoxon test; $P < 0.05$). The scores of actions were significantly higher for males than females ($x^2 = 12.5; P < 0.05$).

The number of actions directed towards the two sides were equal (Right rubs = 5.00 ± SE 0.33; Left rubs = 5.00 ± SE 0.33; table 1). Rubs were, however, made at irregular intervals; there was much exploration, but very little sand-digging.

#### 3.4 Effect of "wetting"

After 'wetting' of pelage, the gerbils bathed intensely by side-rubbing. The increment in the number of actions as compared to bathing frequencies in