SPECIFIC GRAVITY MEASUREMENTS ON BABOON SPERMATOZOA

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The specific gravity (sp. gr.) of baboon spermatozoa was determined using the method described by Danon & Marikovsky (1964) for the determination of the density distribution of red blood cells and used by Lavon, Volcani, Amir & Danon (1966) for sp. gr. determination of bull spermatozoa and seminal plasma.

Baboon semen was collected by electro-ejaculation using a rectal probe (Kraemer & Vera Cruz, 1969) and the ejaculate was fractionated within 5 min of ejaculation into a liquid and a coagulum fraction. Only the liquid fraction of the ejaculate was used for sp. gr. determinations. A battery of phthalate ester separating fluids of increasing sp. gr. (1.040 to 1.111) at increments of 0.002 to 0.003 was prepared. A column (10 mm) of separating fluid was drawn into capillary tubes of the type used for micro-haematocrit determinations (1.1 to 1.2 mm internal diameter). Semen (43 mm) was then introduced by capillarity leaving approximately 20 mm of the tube unfilled. The dry ends of the tubes were flame sealed. The tubes were centrifuged at 12,000 *g* for 12 min. The height of packed cells appearing above the level of the phthalate ester mixture was measured using a microscope fitted with a micrometer. The lack of any appreciable effect of the phthalate esters on the osmotic pressure of the seminal fluid is suggested by the fact that sperm cell motility is maintained during the specific gravity determinations and has been confirmed by direct measurements of osmotic pressure of seminal fluid before and after exposure to phthalate esters.

The mean sp. gr. of the spermatozoa in one ejaculate or in a combined ejaculate (whenever the volume of one ejaculate was not sufficient) was calculated according to the procedure of Lavon *et al.* (1966):

$$\text{sp. gr.} = \frac{d_1 \cdot x_1 + d_2 \cdot x_2 + \dots + d_n \cdot x_n}{100}$$

where d_1 to d_n = % of spermatozoa present on top of the phthalate mixture in one capillary tube and not on top of the separating fluid in the preceding tube, the tubes being arranged in ascending order of sp. gr.

x_1 to x_n = average sp. gr. of two consecutive separating fluids.

The sp. gr. (mean $\pm$ S.E.) of six single ejaculates from six males was 1.0603 ± 0.0101 with a range of 1.0500 to 1.0769, while that of the six combined ejaculates from twelve males was 1.0569 ± 0.0070 ranging from 1.0452 to 1.0637.

The difference between the values obtained from single and combined ejaculates was not statistically significant (Student's *t* test). The values obtained compare well with those obtained with the same method by Lavon *et al.* (1966) on bull spermatozoa which had a range of 1·0376 to 1·0927 and those obtained (using other methods) with stallion (Yamane, 1920), rabbit (Beatty, 1964) and bull (Anderson, 1946) spermatozoa. The observed values on baboon spermatozoa were higher, as expected, than the reported values for whole semen of 1·028 in man, 1·011 in the dog and 1·035 in bulls (Mann, 1964). However, our results were lower than those reported by Lindahl & Kihlström (1952) for bull spermatozoa which ranged from 1·240 to 1·334.

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