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THE ASSESSMENT OF MORPHOLOGICAL VARIABILITY OF THE SEMINAL VESICLES OF ADULT RATS WITH THE HELP OF A GEOMETRICAL MORPHOMETRY METHODS

The study was performed as the part of research work "Morphogenesis of the endocrine, immune and skeletal systems during chronic exposure to volatile components of epoxy resins" (state registration number 0109U004615).

ABSTRACT. Background. The shape and the size are important basic characteristics of organs. Recently among other morphological methods a new approach of investigations of variety of shapes of morphological objects - geometric morphometry becomes more popular. This is a unique analytical tool that allows evaluating a variety of forms completely eliminating the influence of the size factor. With the help of tpsUtil utility we obtained files of photos of seminal vesicles with the extension .tps. Homologous tags-landmarks of total number 12 were positioned on the longitudinal axis of the body using screen digitizer tpsDig2. Marks were placed twice to obtain the scale of possible bias of intergroup morphological differences. The cluster analysis of the shape of seminal vesicles was made with the help of PAST program. **Objective.** The aim of this study was to determine the morphological variability of a seminal vesicles of adult rats in a late periods after inhalation exposure of toluene by using the methods of geometric morphometry. **Methods.** Sixty male laboratory albino rats were obtained from Lugansk State Medical University Laboratories (Lugansk, Ukraine). When received, the subjects were 12 months of age and weighed 130-150 g. The test animals were exposed to target concentrations of 0 (air control) and 500 mg/m³ of toluene air for 5 hours/day, 5 days/week, for 2 month. **Results.** In our investigation the graphic images of analysis of a principal components of all the configurations of rat seminal vesicles in control and experimental series were created together with a dendrogramms of seminal vesicle shapes distribution. **Conclusions.** Under inhalation exposure of toluene on adult rats there were obtained 5 clusters of seminal vesicles shapes, characterized by the change in a body of organ, different correlations "body-hook" and varying degrees of severity of the hook of seminal vesicle.

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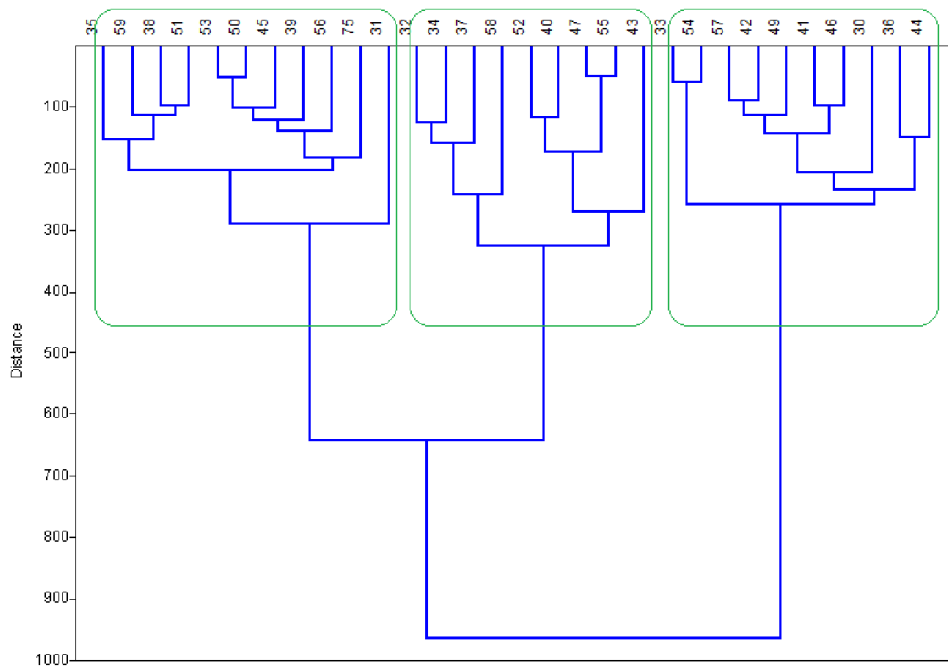


Fig. 1. Dendrogram of seminal vesicles' form distribution in rats of control series. Three clusters of seminal vesicles form.

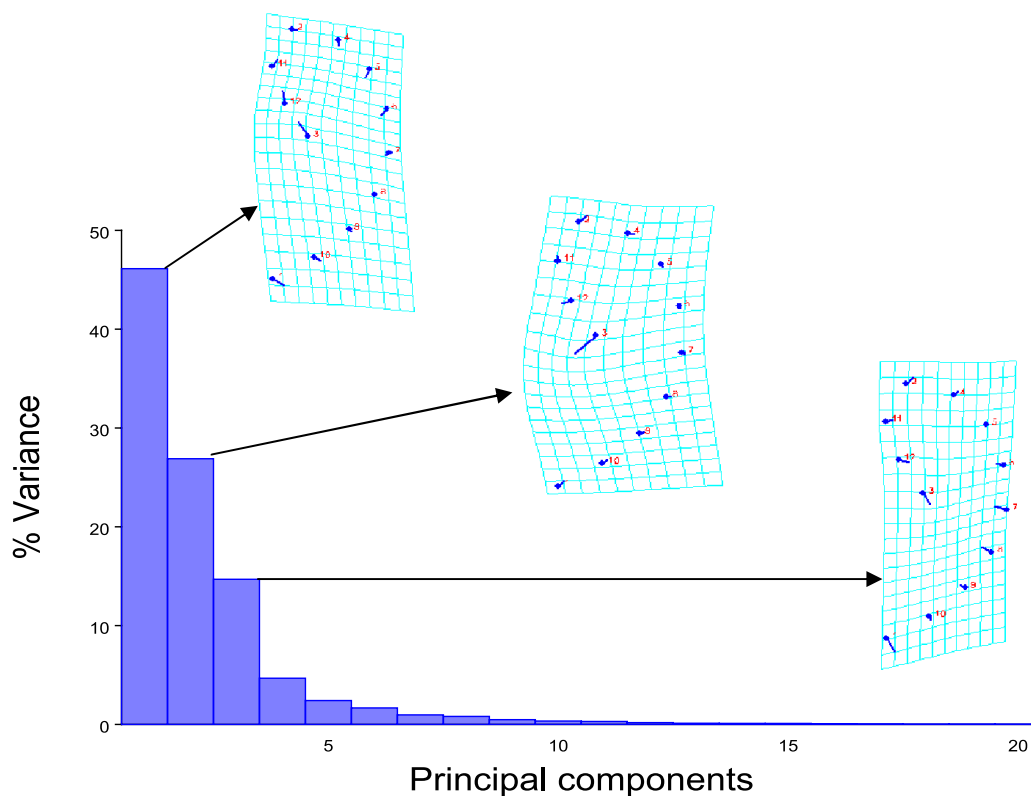


Fig. 2. Graphic representation of analysis of principal components of all seminal vesicles configurations in rats exposed to toluene. The distribution of the variance along the principal components and deformational lattice for the first three principal components.

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