

Morphological Diversity of the Skeletal Structures of Fleas (Siphonaptera). Part 1: the General Characteristic and Features of the Head

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Abstract—Analysis of a considerable amount of data on the anatomy of 14 structures of the head capsule in 96 genera of fleas (over 90% of the genera in the world fauna) shows that different flea taxa can be described based on 32 *universal* and *specific* characters, whose 135 states reflect the entire known diversity of the flea head morphology. Of them, 17 characters can be formulated based on *universal* terms applicable to any structure. Elementary characters can reflect phylogenetic affinity only in association with *specific* characters; these 15 characters are formulated based on specific features of the flea morphology and describe interrelations of the skeletal structures (or microstructures of a particular formation). The concept of a “structural type” is used for multi-aspect characteristics of different character states of some structures. Homoplasies at various levels comprise more than half (53%) of all the character states in the head structure. The character states reflecting the phylogenetic closeness of taxa make up about 22%.

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