

## The cases of hermaphroditism in ukrainian populations of Unionidae (Bivalvia, Unionidae)

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Palaearctic mollusks of *Unionidae* family are considered to be separate sex organisms (Stadnychenko, 1984; Antonova, 1991), rare hermaphrodites (Pekkarinen, 1993; Yanovych, 1997) are viewed as facultative hermaphroditism. In neoarctic *Unionidae* this phenomenon is more wide spread. Thus, three north-american *Unionidae* species are obligate and 14 are facultative hermaphrodites (Kat, 1983; Bloomer, 1939; Henley, 2002).

The aim of the research is to establish sex status of *Unionidae* family specimens with different methods.

*Unio pictorum*, *U. tumidus*, *U. crassus*, *Anodonta cygnea*, *A. piscinalis*, *Pseudanodonta complanata* specimens from water reservoirs and water streams of central woodland region collected during March-October 2005-2009 were researched. The sex status of all specimens (325) was established with temporary preparations by traditional methods (Zhadin, 1938; Stroganova, 1963; Stadnychenko, 1984) and with permanent histopreparations taken from any part of gonad. In deep histological research of the whole sex gland with methods of north-american scientists (Henley, 2002) 135 mollusks of this sample were used.

As the result of *unionidae* sex status establishing with temporary preparations, two groups of specimens were distinguished: males and females. In histological research of preparation from one part of gonad, numerous cases of hermaphroditism were established (12 out of 22 mollusk samples). The part of hermaphrodites varied from  $4.6 \pm 2.0\%$  in *U. tumidus* to  $31.7 \pm 7.3\%$  in *A. cygnea*. In this family in the researched region  $11.8 \pm 1.8\%$  of specimens were established to have developing male and female gametes simultaneously. As the result of the investigation of preparations from the whole gonad, the number of hermaphrodites increased more than twice ( $27.4 \pm 3.8\%$ ). The reason for differences in these two histological investigations is different localization of male and female acynus and uneven correlation of male and female tissues in the gland. Hermaphrodites, males and females evenly occur in all *Unionidae* age groups.

So, the reason for higher level of hermaphroditism in european unionids is the accurate histological analysis of the whole gonad. Also, the probable reason for population sex structure changes and the appearance of many hermaphrodites is negative changes in hydro ecosystems which resulted in rapid mollusk population density decrease and trematode invasions.