

VARIATION IN CHITINOID STRUCTURES OF *HAMATOPEDUNCULARIA WALLAGONIUS* N. SP. IN RELATION TO SEASON

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Hamatopeduncularia wallagonius n.sp. infect gill filaments of *Wallago attu*. During the course of study of the population dynamics, seasonal periodicity and morphology of this parasite, it was noticed that there exists a clear cut variation in the size of chitinoid elements of the parasite in relation to season (summer & winter). Since sizes of chitinoid elements are the principal taxonomic characters (Ergens, 1965 & 1965). Therefore, it is necessary to consider the variations, in size of these elements while describing a new taxa. present paper deals with the changes marked in the chitinoid elements of this Parasite in relation to season.

Results of present investigation (Table I) show that there are statistically significant differences in the indices of many characteristics of chitinoid elements. Parasites collected in summer were smaller as compared to specimens collected in winter.

Earlier, Malemberg (1970) held that chemical composition of water, temperature are factors responsible for the variation in the size of these chitinoid elements. Ergenes (1975 & 1976) also established a direct correlation between size of chitinoid elements in *Gyrodactylus* and temperature of the ambient water. These authors reported that diminution of the adhesive elements in warmer months of year and their enlargement in colder months of year occur.

Kulemina (1977) also recorded variation in chitinoid elements of some species of *Gyrodactylus* due to temperature.

Belova (1977) also reported variation in size of chitinoid elements in *Dactylogyrus hypophthalmichthys* during cold and warm months of the year and opined that higher temperature seems to accelerate the development of adhesive elements. This is probably due to curtailment in the process of embryogenesis.

Bychowsky (1957) and Kearns (1974) reported that temperature is not the only extrinsic factor, yet it is important. The physiological conditions of any animal is related not only with temperature but also with alternate light and dark phases as it plays important role in hatching of the larva from egg (Bychowsky, 1957, Kearns, 1974). Thus light factor can't be ignored in the duration of the development and size of chitinoid elements (Kulemina, 1977).

Bychowsky (1957) reported that *Polystoma integerrimum* development take 3-35 days, with higher temperature this period may be shorter. Lyamon (1951) *D. vastator* reported that 27-28 days are required for egg to develop at 8°C but it takes only 3 days to develop at 28°C. Khotenovskii (1977) reported that light has no appreciable influence on the period of embryonic development of monogeneans as he recorded no difference in the rate of development of *Diplozoon* in complete light and complete dark.

From the foregoing discussion it is clear that temperature is most important extrinsic factor responsible for the development of monogeneans. Since it hastens the process of development as a result of which many new, young individuals are formed. These

Table I. Showing variation in size of chitinoïd elements of *H. wallagonius* n. sp. in relation to season.

Parameter	Size of <i>H. wallagonius</i> in mm		p	r
	Winter	Summer		
Dorsal Anchar	0.087 ± 0.057	0.065 ± 0.075	0.01	0.346
Dorsal transverse bar	0.091 ± 0.055	0.076 ± 0.066	0.05	0.194
Ventral Anchar	0.089 ± 0.063	0.086 ± 0.057	0.01	0.041
Ventral transverse bar	0.059 ± 0.072	0.048 ± 0.069	0.05	0.237
Marginal hooklet	0.108 ± 0.282	0.034 ± 0.198	0.05	0.041
Cirrus	0.048 ± 0.069	0.047 ± 0.061	0.05	0.472
Accessory piece	0.038 ± 0.067	0.037 ± 0.068	0.05	0.079

Figures are mean value ± SE; p = Probability; r = Coefficient of correlation between size of chitinoïd elements in the worms collected in winter and summer.

individuals are viable enough, provided with complete set of adhesive elements which is not yet fully developed as also observed by Ergens (1965 & 1975).

Since reliable difference exist in size of chitinoid elements collected in summer and winter periods. So it is necessary to study morphometric study of parasite with special reference to chitinoid elements as they are chief dignostic characters of monogenean systematics before describing and establishing a new species.

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