

Abstract

The ability to orientate themselves in the definitive host body is very important in the life cycle of trematodes. Contrary to a number of data on trematode orientation in the external environment, migratory routes within the host and places of definitive localization, little is known about compounds serving as stimuli during migration.

In this study we tested chemoorientation of *Trichobilharzia regenti* schistosomula *in vitro*. We tested fractions of the nervous tissue homogenate of domestic duck (*Anas platyrhynchos* f. domestica), various fractions of the duck blood serum, NaCl and KCl solutions, D-glucose, L-arginine and commercially available neuromediators and apolipoprotein A-I. The highest attractiveness was recorded in the case of the blood serum of domestic duck. Significant attractiveness also showed NaCl solution at concentrations of 188 and 205 mM, KCl solution at concentration of 205 mM and combination of NaCl, KCl and D-glucose at concentrations NaCl=136 mM, KCl=5 mM, D-glucose=5,5 mM. As the attractiveness of NaCl and KCl solutions of the same osmolarity (410 mOsm/l) was equal, and D-glucose solution of the same osmolarity showed no attractiveness for schistosomula, we suggest that the chloride ions are the main stimulus for migration.

When various molecular weight fractions of the duck blood serum were tested, 10-30 kDa fraction showed the highest attractiveness. The main attractant was apolipoprotein A-I in the concentration of 1 mg/ml.

Tests with various initial numbers of cercariae showed negative correlation between the initial number of cercariae and the percentage of schistosomula that penetrated the layer of agar with linoleic acid.

Monitoring of sensory papillae at the apical end of the cercariae and schistosomula showed that the most relevant method for characterization of these papillae is scanning electron microscopy. Using this method, 10 papillae belonging to three morphological types were identified. Measurement of two of these papillae reported progressive enlargement of one papilla of the type VII.