The internal defence system (IDS) of snails comprises two limbs, humoral and cellular. Humoral limb involves many different factors including lectins as the most important one. Cellular limb is represented by four different types of cells; hemocytes are the only circulating cells. They represent crucial part of IDS of snails. In this study, activity of hemocytes from susceptible and resistant snails, either noninfected or infected by bird schistosomes, was characterized. Light microscopy and TEM showed capability of hemocytes from susceptible snail to surround (but not destroy) the parasite larvae (sporocysts). Although fluorescent probes (FITC-labeled lectins) did not prove differences in surface glycosylation of hemocytes from noninfected and infected snails, some other hemocyte activities were influenced by the infection. The phagocytic activity of hemocytes from infected snails (patent period of infection) decreased to approx. 50%, if compared with the hemocytes from noninfected snails. Flow cytometry analysis identified three subpopulations of hemocytes in the hemolymph of snails; these subpopulations probably represent three successive developmental stages of hemocytes. It has been shown that proportion of particular subpopulations differs in the hemolymph of noninfected vs. infected snails.