Trematodes are parasites from phylum Platyhelminthes which have compex life cycles involving two to four hosts. This work focuses especially on trematodes of the family Schistosomatidae. Their cercariae which leave the snail intermediate host, actively penetrate the skin of definitive hosts and transform into schistosomula. This is accompanied by detachment of cercarial tail and emptying of penetration glands. During transformation, cercarial bodies undergo extensive ultrastructural and molecular changes. One of these changes is the loss of surface glycocalyx which represents a protective coat in the aquatic environment. In glycocalyx shedding, participation of proteolytic enzymes from cercarial penetration glands is expected during invasion of the host. Glycocalyx has specific composition of saccharide molecules which are bound to lipids or proteins on the membrane of cercarial tegument. This work describes the origin, ultrastructure, saccharide composition, function and shedding mechanism of cercarial glycocalyx.