

Research Journal of Pharmaceutical, Biological and Chemical Sciences, 2015, vol.6, N6, pages 1737-1743

Mycelial and extracellular lectins of lower fungi

Mukhammadiev R., Bagaeva T.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

Screening of 27 fungi belonging to Rhizoctonia, Fusarium, Aspergillus and Penicillium on their ability of mycelial and intracellular lectins biosynthesis was carried out. It was revealed that the majority of isolates synthesized lectins with different degree of activity. Micromycet Rh. solani stood out among other strains due to the pronounced ability to produce highly active mycelial lectins (titer of 16384). Extracellular lectins of studied strains possessed significantly lower agglutinative activity compared to lectins from mycelial extracts, or did not have it at all. The highest activity of extracellular lectins was observed in isolates of Rh.solani (titer 512) and A.flavus (titer 512). A lot of fungi lectins lacked specificity against red blood cells of 1-3 groups of human blood, but did not cause agglutination of red blood cells of sheep. The exception was mycelial lectins of F. sporotrichioides and Penicillum 4 isolates and an extracellular lectin of F. redolens 1 isolate, which showed specificity only to the 1st group of human blood and extracellular lectin of A. niger 2-to the 2 group. Surface modification of erythrocytes with trypsin or pronase significantly increased the ability of lectins to hemagglutination, and red blood cell pronase treatment was far more effective.

Keywords

Activity, Fungi, Lectins