LECTINS IN HOST-PATHOGEN INTERACTIONS: STRUCTURE, FUNCTION, AND THEIR ANALYTICAL POTENTIAL

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Lectins are carbohydrate-binding proteins of non-immune origin. While some play a role in immune system processes, they are not primary immune response products and lack catalytic activity toward their ligands. Microbial lectins recognize carbohydrates on host cells (glycoproteins or glycolipids), facilitating adhesion to host cells or mucosal surfaces, making them important virulence factors. Our long-term aim is an identification, isolation and characterization of lectins from bacteria and fungi, especially from pathogens affecting humans, plants and insects.
Contribution is focused on structure-function studies of several examples of microbial lectins participating in the host-pathogen interaction as well as lectins from bacteria that may be involved in nematobacterial complexes highly pathogenic for a broad range of insects.
As a demonstration of an importance of lectin research, several examples of lectins recently discovered and structurally and functionally characterized in our group will be presented. A novel calcium dependent lectin able to bind glycosaminoglycans will be shown and structural features that are responsible for different specificities among all homologous proteins will be discussed.