
**STRUCTURAL AND BIOLOGICAL INVESTIGATION OF
PLANT AND MUSHROOM POLYSACCHARIDES**

SYNOPSIS

**SUBMITTED FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY
(SCIENCE)**

**TO
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**BY
BIBHASH CHANDRA PANDA**

**DEPARTMENT OF CHEMISTRY & CHEMICAL TECHNOLOGY
VIDYASAGAR UNIVERSITY
MIDNAPORE-721 102
WEST BENGAL, INDIA**

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The present thesis entitled “**Structural and Biological Investigation of Plant and Mushroom Polysaccharides**” is mainly based on the determination of the structure as well as some essential biological and antioxidant properties of different polysaccharides isolated from the green fruits of *Momordica charantia*, (Karela) and edible mushroom *Pleurotus cystidiosus*. The entire thesis is divided into four chapters.

Chapter-I:

It describes the general introduction to carbohydrates, polysaccharides of plant and mushroom with their biological activities. Carbohydrates are the first group of bioorganic compounds which are also organic compounds found in biological systems. These are generally classified into four groups: monosaccharide, disaccharide, oligosaccharide and polysaccharide. Polysaccharides from both mushroom and plant have drawn the attention of chemists and immunobiologists on account of their immunomodulatory, antitumor, antimicrobial and antioxidant properties.

Chapter-II:

It represents the methodologies of isolation, purification and determination of the structure of polysaccharides and their bioactivity studies. Structural characterizations of the polysaccharides were carried out through physical characterization, chemical analysis, analytical methods like GLC-MS, 1D and 2D NMR experiments.

Chapter-III:

This chapter describes the isolation, purification, structural characterization, immunoenhancing and antioxidant properties of the polysaccharide isolated from the green fruits of *Momordica charantia*, (Karela).

This paper has been published in **Carbohydrate Research**, 2015, 401, 24–31.

Chapter-IV:

This chapter is another part of the thesis which contains structural characterization and study of biological activities of the polysaccharide isolated from an edible mushroom, *Pleurotus cystidiosus*.

This work has been published in **International Journal of Biological Macromolecules**, 2017, 95, 833-842.