
Summary

SUMMARY

The present thesis entitled “**Studies of biologically active polysaccharides of mushrooms**” is mainly divided into five chapters-

Chapter I: This chapter represents the introduction of carbohydrates, polysaccharides including mushroom polysaccharides, and some of their important biological activities.

Chapter II: In this chapter experimental methodologies are described that were adopted during the whole course of the research work.

Chapter III: This chapter is one of the major parts of this thesis, which describes the isolation, purification, structural characterization, and antioxidant properties of heteroglycan isolated from the edible mushroom *Termitomyces clypeatus* (R. Heim). This work has been published in **Carbohydrate Research 413 (2015) 30-36.**

Chapter IV: This chapter contains structural and biological studies of heteropolysaccharide isolated from an edible mushroom *Tuber rufum* (Pico) var. This work has been published in **International Journal of Biological Macromolecules 95 (2017) 1037-1048.**

Chapter V: This chapter describes the isolation, characterization, and antioxidant properties of heteroglycan isolated from a wild edible mushroom *Lentinus sajor-caju*. This work has been published in **International Journal of Biological Macromolecules 107 (2018) 322-331.**

List of publications

[1] Heteroglycan of an edible mushroom *Termitomyces clypeatus*: structure elucidation and antioxidant properties, **Manabendra Pattanayak**, Surajit Samanta, Prasenjit Maity, Ipsita K. Sen, Ashis K. Nandi, Dilip K. Manna, Payel Mitra, Tapas K. Maiti, Krishnendu Acharya, Syed S. Islam, **Carbohydrate Research**, 413 (2015) 30-36.

[2] Polysaccharide of an edible truffle *Tuber rufum*: Structural studies and effects on human lymphocytes, **Manabendra Pattanayak**, Surajit Samanta, Prasenjit Maity, Dilip K. Manna, Ipsita K. Sen, Ashis K. Nandi, Bibhash C. Panda, Sourav Chattopadhyay, Somenath Roy, Atish K. Sahoo, Nibha Gupta, Syed S. Islam, **International Journal of Biological Macromolecules**, 95 (2017) 1037-1048.

[3] Studies on structure and antioxidant properties of a heteroglycan isolated from wild edible mushroom *Lentinus sajor-caju*, **Manabendra Pattanayak**, Prasenjit Maity, Surajit Samanta, Ipsita K. Sen, Dilip K. Manna, Ashis K. Nandi, Sandipta Ghosh, Krishnendu Acharya, Syed S. Islam, **International Journal of Biological Macromolecules**, 107 (2018) 322-331.

[4] Heteroglycan of an edible mushroom *Entoloma lividoalbum*: Structural characterization and study of its protective role for human lymphocytes, Prasenjit Maity, Ashis K. Nandi, Ipsita K. Sen, **Manabendra Pattanayak**, Sourav Chattopadhyay, Sandeep Kumar Dash, Somenath Roy, Krishnendu Acharya, Syed S. Islam, **Carbohydrate Polymers**, 114 (2014) 157-165.

[5] A partially methylated mannogalactan from hybrid mushroom *pfl* *lp*: purification, structural characterization and study of immunoactivation, Prasenjit Maity, **Manabendra Pattanayak**, Saikat Maity, Ashis K. Nandi, Ipsita K. Sen, Birendra Behera, Tapas K. Maiti, Pijush Mallick, Samir R. Sikdar, Syed S. Islam, **Carbohydrate Research**, 395 (2014) 1-8.

[6] A water soluble β -glucan of an edible mushroom *Termitomyces heimii*: Structural and biological investigation, Dilip K. Manna, Ashis K. Nandi, Manabendra Pattanayak, Prasenjit Maity, Satyajit Tripathy, Amit K. Mandal, Somnath Roy, Sushri S. Tripathy, Nibha Gupta, Syed S. Islam, **Carbohydrate Polymers**, 134 (2015) 375-384.

[7] Studies on antioxidative and immunostimulating fucogalactan of the edible mushroom *Macrolepiota dolichaula*, Surajit Samanta, Ashis K. Nandi, Ipsita K. Sen, Prasenjit Maity, **Manabendra Pattanayak**, K. Sanjana P. Devi, Somanjana Khatua, Tapas K. Maiti, Krishnendu Acharya, Syed S. Islam, **Carbohydrate Research**, 413 (2015) 22-29.

[8] Structural characterization and antioxidant activity of a glucan from *Meripilus giganteus*, Prasenjit Maity, Ashis K. Nandi, Dilip K. Manna, **Manabendra Pattanayak**, Ipsita K. Sen, Sunil K. Bhanja, Surajit Samanta, Bibhash C. Panda, Soumitra Paloi, Krishnendu Acharya, Syed S. Islam, **Carbohydrate Polymers**, 157 (2017) 1237-1245.

[9] Heteroglycan of an edible Mushroom *Pleurotus Cystidiosus*: structural characterization and study of biological activities, Bibhash C. Panda, Prasenjit Maity, Ashis K. Nandi, **Manabendra Pattanayak**, Dilip k. Manna, Soumitra Mondal, Satyajit

Tripathy, Somenath Roy, Krishnendu Acharya, Syed S. Islam, **International Journal of Biological Macromolecules**, 95 (2017) 833-842.

[10] Structural elucidation and immunostimulating property of a novel polysaccharide extracted from an edible mushroom *Lentinus fusipes*, Dilip K. Manna, Prasenjit Maity, Ashis K. Nandi, **Manabendra Pattanayak**, Bibhash C. Panda, Amit K. Mandal, Satyajit Tripathy, Krishnendu Acharya, Atish K. Sahoo, Nibha Gupta, Somnath Roy, Syed S. Islam, **Carbohydrate Polymers**, 157 (2017) 1657-1665.

[11] Structural characterization of a heteroglycan from an edible mushroom *Termitomyces heimii*, Prasenjit Maity, Ashis K. Nandi, Manabendra Pattanayak, Dilip K. Manna, Ipsita K. Sen, Indranil Chakraborty, Sunil K. Bhanja, Atish K. Sahoo, Nibha Gupta, Syed S. Islam, **International Journal of Biological Macromolecules**, 151 (2020) 305-311.