STUDIES ON SEED BORNE MYCOFLORA ASSOCIATED WITH OIL SEED (MUSTARD) AND CEREAL CROP (RICE) OF INDO-GANGETIC AREA AND THEIR ECO-FRIENDLY MANAGEMENT

A Thesis Submitted in Partial Fulfillment of the Requirements
for the Degree of
Doctor of Philosophy

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February 2022

ABSTRACT

This research is on studies of seed borne mycoflora associated with different oilseeds and cereal crops like rice (khas) and mustard (jhumi) and the management and control of the inhibition of growth of the crops by such mycoflora through the scientific application of different mechanisms. The objectives of the work were as follows:

- To detect and identify the seed borne mycoflora associated with seed samples collected from major oilseed & cereal crop growing areas of West Bengal (Indo-Gangetic areas of West Bengal).
- To isolate different seed borne mycoflora (bacteria and fungi) associated with seeds of cereal and oil seed samples.
- To study the germination of seed and percentage of seed borne mycoflora before seed treatment.
- To study the efficacy of different plant extracts (leaf extract of Neem, Bon Tulsi, Sajne, Datura) for the treatment of different varieties of seeds by soaking methods.
- To study the efficacy of different bio- agents against seed borne mycoflora.
- To study the effectiveness of various chemicals (BACTRINASHAK, BULLET, INDEX, ZEN, ROKO, FASTO, MOXIMATE, CAPTAF, ZEB M-45) on predominant seed borne mycoflora.
- To study the effectiveness of antibiotics (MYCOMYCIN, B-MYCIN, STREPTOMYCIN) on predominant seed borne mycoflora.
- Estimation of protein content of rice and mustard by using SDS-PAGE Method to observe the amount of protein initially and after long storage periods.
- To study the efficacy of seed priming (Hydropriming, Halopriming, Osmopriming, Hormonal priming) on germination power of seed.
- To study the various chemical and physical changes before and after seed treatment by sectioning the seed and by chemical testing.

The methodology followed consisted of the tools and methods applied for the research to collect data essentially required for the analysis of the research. Different methodologies were adopted and applied. Studies on zone of inhibition of different mycoflora by different plant extracts at different concentrations and findings from the results have been put under different categories of methods such as Agar Plate category, Standard Blotter category, etc., to find the relative fungal growth and their management. Also methods such as FACS (Fluorescence Activated Cell Sorting

Method), Phytochemical Estimation Method, GC-MS, for detection of bioactive compounds, Gene Based Molecular Methods were used.

Data analysis was done for three factors – a) for isolation factor, b) for management factor and c) mechanism factor and miscellaneous methods. The results found were statistically analysed.

The research was done vividly through various tools, methods and analysis to find the results of various treatment methods to find the different results of fungal growth under different conditions and their control inhibition mechanisms. The research studies leave a wide scope for further research on this to find deeper down analyses further with different conditional parameter. In this result six pathogens are associated with this seeds and it can be managed by ethyl acetate extract of Neem, Dhatura , Sajne and Bon Tulsi.