ANTIFUNGAL EFFEFT OF LEMONGRASS (*Cymbopogon citratus*) ESSENTIAL OIL ON SEED ASSOCIATED FUNGI OF WHEAT AND RICE

By

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Dedicated to my beloved parents and my loving wife Mrs. Shehla, Gul who really supported me throughout my MS research work.

ABSTRACT

Rice and wheat germplasm were screened for the presence of seed both saprophytic as well as pathogenic fungi associated with wheat and rice seeds. Seven fungal species *viz.*, *Alternaria alternata*, *Aspergillus flavus*, *Aspergillus niger*, *Curvularia lunata*, *Drechslera indica*, *Drechslera tripogonis* and *Fusarium moniliforme* were associated with rice while five fungi *viz.*, *Alternaria alternata*, *Aspergillus flavus*, *Aspergillus fumigatus*, *Aspergillus niger* and *Drechslera indica* were found in wheat. Among all the isolated fungi *Aspergillus flavus* was found as predominant fungi (41%) associated with seeds of rice and (33%) with seeds of wheat. The antifungal potential at different concentrations of lemongrass essential oil was tested by using disk diffusion method. Minimum inhibitory concentration (MIC) of lemongrass essential oil against each fungus was determined through agar plug method. Highest MIC (55ppm) was recorded for *Aspergillus flavus* and lowest for *Drechslera indica* (20ppm). Significant differences were recorded for different concentrations of lemongrass essential oil against isolated fungi ($p \leq 0.05$) against tested fungi. However, *Aspergillus niger* was found the most susceptible fungal strain to lemongrass essential oil.

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ABBREVIATIONS

µm	microliter
µm	micrometer
ml	milliliter
mm	millimeter
□ C	degree Celsius
cm	centimeter
DMSO	dimethyl sulphoxide
KPK	Khyber Pukhtunkhwa
NARC	National Agriculture Research Center
PDA	potato dextrose Agar
PGRI	Plant Genetic Resources Institute
MIC	minimum inhibitory concentration
ppm	part per million
PC	positive control

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