

## EVALUATION OF PLANT EXTRACTS AS SEED TREATING AGENT FOR HYBRID RICE

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### Extended Summary

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An investigation was carried out to evaluate the efficacy of some selected plant extracts for seed treatment of hybrid rice in the Seed Health Laboratory of Department of Plant Pathology of Sher-e-Bangla Agricultural University during the period from January 2012 to May 2013. The experiment was carried out according to the rules of International Seed Testing Association (ISTA) and following Completely Randomized Block Design with four replications. Nine plant extracts viz. onion (*Allium cepa*) bulb extract, kalijira (*Nigella sativa*) seed extract, allamonda (*Allamanda cathartica*) leaf extract, garlic (*Allium sativum*) clove extract, neem (*Azadirachta indica*) leaf extract, datura (*Datura metel*) leaf extract, turmeric (*Curcuma longa*) rhizome extract, biskatali (*Polygonum hydropiper*) leaf extract and shimul (*Salmalia malabarica*) leaf extract were evaluated against seed borne pathogens of hybrid rice. All of the botanical were used as per 1:1 (w/b) ratio. In this experiment, seven seed borne fungi were identified by blotter method. Two strains of a single bacterium were detected. The identified pathogens were *Xanthomonas oryzae* pv. *oryzae* (two strains), *Rhizopus stolonifer*, *Aspergillus flavus*, *Aspergillus niger*, *Fusarium moniliforme*, *Bipolaris oryzae*, *Curvularia lunata* and *Chaetomium globosum*. Out of these pathogens, *Xanthomonas* spp., *Rhizopus stolonife*, *Aspergillus* spp., *Fusarium moniliforme* were predominant. *Xanthomonas oryzae* pv. *oryzae* was identified by the pathological study. Bacterial colony was seen yellowish and whitish color, and circular colony and showed pathogenic reaction in pathogenicity test. It was observed that, all of the varieties are highly susceptible to the bacterium named *Xanthomonas oryzae* pv. *oryzae*. Hera 2, BRRI hybrid dhan2 and SL 8 are more susceptible to the strain 1. All of the plant extracts significantly control seed borne fungi. Among the plant extracts, datura leaf extract, turmeric rhizome extract, allamonda leaf extract and garlic clove extract showed best performance against the seed borne pathogen. Kalijira seed extract, bishkatali and shimul leaf extract also showed promising effect against seed borne fungi only. Datura leaf extract and turmeric rhizome extract have the highest bactericidal and anti fungal efficacy among the plant extracts used in the experiment. From the findings of the study, it

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is very clear that, the seed health status of hybrid rice seed was not at satisfactory level. Considering the overall performance of plant extracts, datura leaf extract (1:1 w/b) and turmeric rhizome extract (1:1 w/b) could be used for seed treatment of hybrid rice as an eco friendly approach and may be advised to the farmers for profitable hybrid rice production.