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In vitro efficacy of algal extracts and *Pseudomonas fluorescens* against rice blast pathogen *Pyricularia oryzae*

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Rice blast caused by *Pyricularia oryzae* is one of the most destructive diseases of rice in almost all rice growing areas of world, both in terms of yield reduction and distribution. Heavy yield loss of even 100 per cent was reported in many rice growing countries leading to severe epidemics. Hence managing this disease is therefore a great challenge for the farmers. In India, although the management of blast disease is highly dependent on chemical fungicides, it remains too expensive for the majority of small holders. In addition, the hazards associated with the increased use of synthetic fungicides on environment has necessitated the search for the development of nature based alternative disease management strategy for attaining sustained yield without upsetting the balance of nature. In recent years, seaweeds with wide array of therapeutic natural compounds have received increasing attention as ecologically safe and globally acceptable disease management strategy. Hence an attempt was made to test the antifungal potentialities and growth promoting activities of crude seaweed extracts *viz., Sargassum wightii, Stoechospermum marginatum* and *Chaetomorpha crassa* at 0.5, 1.0, 1.5 , 2.0 per cent concentrations and the bacterial biocontrol agent *Pseudomonas fluorescens* (both talc and liquid formulation) @ 10 g (ml) / kg of seed against the blast pathogen *Pyricularia oryzae* under *in vitro* condition. The results revealed that the green algal extract *C. crassa* at 1.0 per cent recorded maximum inhibition of 89.69 per cent of mycelial growth of *P. oryzae* followed by liquid formulation of *P. fluorescens* and the brown algae *S. marginatum* at 1.0 per cent recorded highest seed germination of 100 per cent and maximum vigour index of 4638. The better antifungal activity of *C. crassa* is due to the presence of antimicrobial phenolic compounds in green algae. Increased seed germination and seedling vigour by *S. marginatum* may be attributed to the presence of growth promoting hormones like auxin, gibberllins and cytokinins which are beneficial at low concentrations.

KEY WORDS:
In vitro studies, efficacy of algal extracts, *Pseudomonas fluorescens* rice blast pathogen, *Pyricularia oryzae*