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Evaluation of antibiotics, fungitoxicants and botanicals against *Xanthomonas oryzae* pv. *oryzae*, A cause of bacterial leaf blight of rice

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ABSTRACT

In vitro efficacy of different antibacterial compounds, were evaluated against *Xanthomonas oryzae* pv. *oryzae* (Xoo) causing bacterial leaf blight of rice. Six antibiotics *viz.*, Streptocycline, Streptomycin, Streptomycin sulphate, Plantomycin, Tetracycline hydrochloride and Oxytetracycline hydrochloride were evaluated for their efficacy against the growth of *Xoo* cultures at two levels (50 and 100ppm) of concentration except Plantomycin (500 and 1000 ppm) using inhibition zone assay method. The largest inhibition zone (25 mm) was documented in Tetracycline hydrochloride @ 100ppm, followed by 23 mm obtained in Streptomycin @ 100ppm. Five fungitoxicants comprising Copper Oxychloride 50 % WP (0.15 and 0.25%), Copper hydroxide 77 % WP (0.15 and 0.25%), Carbendazim 50 % WP (0.05 and 0.15%), Validamycin 3L (0.15 and 0.25%) and Propiconazole 25% EC (0.05 and 0.1%) were evaluated for their efficacy against growth of *Xoo* cultures at two levels of concentration. The maximum inhibition zone (19.34mm) was recorded in Validamycin @ 0.25% followed by 18.16mm observed in copper oxychloride @ 0.25%. Effect of combination of antibiotics and fungitoxicants were studied using a set comprising of six commercially available antibiotics *viz.*, Streptocycline (100 ppm), Streptomycin (100 ppm), Streptomycin sulphate (100 ppm), Plantomycin (1000 ppm), Tetracycline hydrochloride (100 ppm), Oxytetracycline hydrochloride (100 ppm), and three fungitoxicants *i.e.* Copper oxychloride 50 % WP (0.25%), Copper hydroxide 77% WP (0.25%), Carbendazim 50 % WP (0.15%) were evaluated for their efficacy against growth of *Xoo*. Single concentration of each antibiotic will be evaluated with combination of three fungitoxicants separately. Maximum inhibition zone (25.8mm) was obtained in case of Streptocycline + Carbendazim which is at par with Tetracycline hydrochloride + Copper oxychloride and Streptomycin sulphate + Copper hydroxide. The cultures of *Xoo* were also screened with plant extracts *viz.*, Neem leaf, Garlic bulb, Onion bulb, Ginger rhizome, Tulsi leaf at three levels (10, 20 and 30%) of concentration for their antibacterial properties against

Xoo. The maximum inhibition zone (9.2 mm) was recorded in Garlic @ 30% followed by 9.14mm resulted in Tulsi @ 30 per cent.

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