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Authors: Kumar Paswan, Avinash (/browse?type=author&value=Kumar+Paswan%2C+Avinash)

Advisor: Ekka, Savita (/browse?type=author&value=Ekka%2C+Savita)

Title: STUDIES ON SMALL MILLETS ISOLATES OF *Pyricularia grisea* AND ITS ECO-FRIENDLY MANAGEMENT ON FINGER MILLET

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Abstract: India is the largest producer of many kinds of millets, which are often referred to as coarse cereals. They are now considered as “Nutria-cereals” (nutritious grains) owing to their high calcium, iron, fiber and other quality effects. These nutria-cereals are the important dry land crops comprising of finger millet (*Eleusine coracana*), kodo millet (*Paspalum scrobiculatum*), foxtail millet (*Setaria italica*), little millet (*Panicum sumatrense*), barnyard millet (*Echinochloa frumentacea*) and proso millet (*Panicum miliaceum*). Though the crop is less prone to diseases and pests but under vulnerable condition, blast caused by *Pyricularia grisea* (Cooke) Sacc. Teleomorph of heterothallic ascomycetes, *Magnaporthe grisea* (Hebert) Barr. [Anamorph:] had wide host range of Gramineae and taken heavy toll of the crop in various ecological zones. 18 monoconidial isolates of *P. grisea* were obtained from four different Small millets showing characteristic symptom on foliage. Among them, only four isolates were selected and designated as Pg1, Pg2, Pg3 and Pg4 based on their growth characteristics and respective host for intensive characterization. Studies on morphological character of different isolates of *P. grisea* revealed that the variation with respect to shape, colour, septation and size of conidiophores and conidia. The mycelia of the isolates were highly branched, septate, superficial and bearing conidia at the tip or side of the conidiophores. In all isolates, conidia were two septate, three celled with broad base and pointed apex having pyriform shape except Pg3 formed sub pyriform with slightly constrict apex. Among the isolates, the size of conidia was largest in Pg3. Studies on cultural variability of different isolates on four media (Potato dextrose agar, Corn meal agar, Czapek Dox agar and Richard’s agar media) showed considerable variations. Maximum radial growth of all isolates was obtained on PDA media and minimum on RA media. Colony colour of all isolates showed variation on different media. On PDA all isolates produced greyish white to milky white colony. On CMA media Pg1 and Pg4 isolate exhibited greyish black colony. On CDA media all isolates formed dull to buff white colony whereas, on RA media all isolates produced greyish buff white colonies. Colony texture of all isolates showed variation on different media recorded isolates on all media were raised, course to smooth with uniform, medium to poor growth. Cross inoculation studies revealed that the isolate of finger millet (Pg1) and isolate of foxtail millet (Pg4) were found to be cross infective with each other whereas the isolate of proso millet (Pg3) and little millet (Pg2) were non-infective on other hosts. In-vitro efficiency of seven plant extracts were evaluated against *P. grisea* isolates at two 5% and 10% concentrations by poisoned food technique and the result indicated that Zuki (herbal control product) shows maximum mycelial growth inhibition among all plant extracts evaluated. Among bio-control agents other than botanicals, *T. viride*, inhibited the growth of finger millet isolate Pg1 and foxtail millet isolate Pg4 whereas, *P. fluorescens* recorded maximum inhibition on isolates of little millet Pg2 and isolate of proso millet Pg3. Varietal screening through host plant resistance reaction revealed that out of 23 genotypes of finger millet only one genotype, VL352 recorded highly resistant reaction whereas, ten genotypes (GPU 94, VR 936, GPU 67, BR 14-3, GPU 93, KMR 630, GPU 48, VL 386, GPU 48, and VL379) showed resistant reaction against leaf neck and finger blast. Eco-friendly management through botanical and bio-control agents resulted that seed treatment with *T. viride* @ 4g/kg + 1st foliar spray with Zuki @ 0.1% + two foliar spray with *P. fluorescens* @ 0.6% recorded maximum diseases control 55.55 per cent and 61.42 per cent in neck blast and finger blast respectively, with highest grain yield 1530.87 kg/ha.

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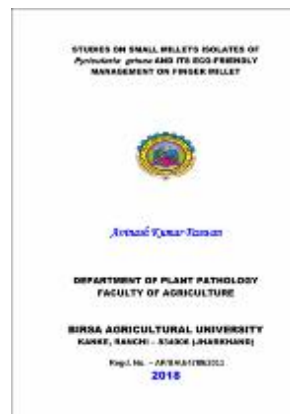
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