

Effect of botanicals and biofungicide on controlling tikka disease (*Cercospora* sp.) of groundnut (*Arachis hypogea* L.)

ABSTRACT

The leaf spot or Tikka disease (*Cercospora arachidicola* and *Cercosporidium personatum*) of groundnut (*Arachis hypogea* L.) is a predominant, devastating and economically important foliar fungal disease and a major yield reducing factor of groundnut, not only in Bangladesh, but also all over the world. The yield loss was calculated in the groundnut variety Dhaka-1 due to early and late leaf spot (Tikka) by over 30.648% in Bangladesh. The efficacy of NLEFS (*Azadirachta indica*), DeBLEFS (*Polyalthia longifolia*), DLEFS (*Datura metel*), Trichoderma based biofungicides (BBST, BBFS and BBSFS) along with a check (Bavistin) and control were evaluated in the pot and field research. Among the treatments, BBSFS, NLEFS, DLEFS and DeBLEFS showed better performance in controlling leaf spot and increasing pod yield by 53.61, 51.91, 40.85 and 38.72%, respectively as compared to control in the field. In case of seedling germination, BBSFS gave 97.77% germination followed by NLEFS (88.14%), DLEFS (93.33%) and DeBLEFS (95.55%). BBSFS produced higher length and weight of shoot and root and vigour index as compared to control. Maximum vigour index was observed under BBFS (1583.88). BBSFS gave higher plant height, number of leaves and minimum number of infected leaves in the pots and field as compared to control. Minimum leaf area diseased was obtained with BBSFS followed by Bavistin in the field. Biofungicide (BBST, BBFS and BBSFS), NLEFS, DLEFS and DeBLEFS showed promising performance in number and weight of pods and pod yield in the pots and field. Maximum weight of pods/plant and weight of mature pods/plant was achieved with BBSFS (20.05 g and 18.55 g) followed by NLEFS (19.83 g and 18.22 g). The highest net profit was recorded with the use of BBSFS by Tk. 176768.00/ha followed by NLEFS Tk. 172275.00/ha, BBFS Tk. 168818.00/ha, while the lowest Tk. 96443.00/ha in untreated control. Maximum Benefit-Cost Ratio (BCR) 1: 2.77 was found in BBSFS followed by BBST (1: 2.65), BBFS (1: 2.64) and NLEFS (1: 2.62).

Keyword: Biofungicides; Botanicals; Groundnut; Management; Tikka disease