

## SCREENING OF ALLELOPATHIC POTENTIAL BANGLADESHI WHEAT (*Triticum aestivum* L.) VARIETIES

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### Executive Summary

Wheat (*Triticum aestivum* L.) is among the most important cereal crops, but the production of wheat varieties in Bangladesh is not sufficient. Weeds inflict a negative effect on crop yield and in wheat a range of 18–29% grain yield decrease caused by weeds. Therefore, a series of experiments were carried out at Sher-e-Bangla Agricultural University, Dhaka, Bangladesh from September 2018 to March 2019 to screen out the allelopathic potential of Bangladesh wheat varieties. Initially, thirteen Bangladesh wheat varieties were used in the donor-receiver bioassay method to screen out allelopathic potential varieties in laboratory (*in vitro*) conditions. Eleven wheat varieties were selected including allelopathic and non-allelopathic from the laboratory test for the field study (*in vivo*) which was raised by following no weed control method. Randomized Complete Block Design was followed in the experiment with three replications. BARI Gom-21 gave the highest inhibition effect (81%) while the stimulating effect was given by BARI Gom-30 (-48.2%) irrespective of test species. There were different weed species viz., *Chenopodium album*, *Amaranthus viridis*, *A. spinosus*, *Heliotropium indicum*, *Alternanthera philoxeroides*, *Eleusine indica*, *Solanum caroliensis*, *Corchorus acutangulus*, *Echinochloa colona*, *Cyperus rotundus*, *Vicia sativa*, *Solanum torvum*, *Lindernia procumbens*, and so on infested the experimental plots. However, in the case of BARI Gom-21 raised plots had the lowest infestation and the lowest (12.02 g m<sup>-2</sup>) dry matter of weeds. In addition, some weed species including *C. album* and *A. viridies* were not found in the BARI Gom-21 variety raised plots. In both *in vitro* and *in vivo* experiments, BARI Gom-21 wheat variety was selected as the most allelopathic Bangladesh wheat variety. This wheat variety could be used for the isolation and identification of allelochemicals and to further develop new varieties that would be tolerant to weeds.

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