Abstract

In a randomized pot experiment, the effect of nine plant growth regulators (PGRs) namely benzyl amino purine, chlormequat, gibberellic acid (GA_3), indole acetic acid, indole butyric acid, kinetin (KIN), methyl jasmonate, salicylic acid (SA), and triacontanol (TRIA) on the growth and physio-biochemical performance of mustard. The plants were sprayed with a uniform concentration at 5 μM each of PGRs at 50 and 70 days after sowing (DAS). At 80 DAS various morpho-physiological and biochemical parameters were studied. The data showed varied effects of PGRs on parameters studied. Among PGRs, SA proved best for most parameters studied, for example, SA increased root length by 35.56%, shoot length by 26.56%, root fresh mass by 33.15%, shoot dry mass by 31.86%, root dry mass by 37.09%, chlorophyll content by 29.04%, photosynthetic rate by 29.91% and carbonic anhydrase activity by 28.82%, over the water sprayed plants. GA_3 surpassed others for leaf area, relative water content, leaf phosphorous and potassium content over the water sprayed plants. Moreover, TRIA gave maximum value for nitrate reductase activity and leaf nitrogen content over the water sprayed plants. The result revealed the overall superiority of SA for improving morpho-physiological and physio-biochemical performance of mustard.

Key points: *Brassica juncea* (L.); Plant growth regulators; physio-biochemical methods; photosynthesis and related parameters; enzymatic activities; nutrient content