Abstract:

A field experiment was conducted in summer and winter for two consecutive seasons (1997/98 and 1998/99) in the Experimental Farm of the Faculty of Agriculture at Shambat in order to study the response of two roselle (Hibiscus sabdariffa var. sabdariffa L.) genotypes to the application of nitrogen, phosphorus and sulphur. The treatments consisted of two roselle genotypes (CV1 and Line 24), three nitrogen levels (0, 50, 100 kg N/ha.), three phosphorus levels (0, 75, 150 kg P2O5/ha.) and two sulphur levels (0, 50 kg S/ha.). Urea (46%N), triplesuperphosphate (48% P2O5) and elemental sulphur were used as sources of nitrogen, phosphorus and sulphur, respectively. The experiment was laid out in a split-plot design with four replications. The genotypes were allotted to the main plots, whereas the fertilizer treatments were designated to the subplots. The results showed that the two roselle genotypes differed significantly in vegetative growth, with CV1 giving taller plants with more branches and higher shoot dry weight than Line 24. However, Line 24 tended to flower earlier than CV1. In the first season, CV1 had significantly higher dry calyx yield and consistently, though not significantly, higher calyx dry weight and number of fruits/plant than Line 24. In the second season, however, the differences between the two genotypes were not significant, although CV1 gave consistently higher yield and yield components than Line 24. Nitrogen and phosphorus significantly increased all vegetative parameters in both seasons, whereas sulphur had such effect only in summer. None of the fertilizers used had any effect on flowering, and nitrogen and phosphorus caused a significant increase in dry calyx yield, calyx dry weight and number of fruits/plant. Sulphur had no effect on yield and yield components, and the interaction between the nutrients significantly affected growth and yield. Both genotypes exhibited better vegetative growth, but later flowering in summer than in winter. In addition, the summer crop gave more than tenfold higher yield than the winter crop.