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Article title	Effects on growth, yield, root quality and anatomy in sugar beet (<i>Beta vulgaris</i> L.) using a mixture of yeasts and organic manure as an alternative to mineral -N fertiliser.
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Abstract

The effects of seed inoculation with a mixture of yeasts and farmyard manure (FYM), as an alternative to mineral -N fertilizer, on the growth, some metabolites, root yield and quality as well as anatomy of sugar beet on newly-reclaimed soil were investigated. A field trial was performed in a randomized complete block design with four treatments. The different treatments were Yeasts + ١٧.٥ metric tons (MT) FYM, Yeasts + ٣٥ MT FYM, and Yeasts + ٧٠ MT FYM ha⁻¹. In addition, the recommended dose of mineral -N fertilizer was used as a control. Significant positive effects of Yeasts + ٧٠ MT FYM ha⁻¹ were observed on growth traits, leaf photosynthetic pigments content, leaf and root nitrite (NO₂⁻) and nitrate (NO₃⁻) contents, total sugar yield ha⁻¹, root yield ha⁻¹, root sucrose%, purity%, total soluble solids % (TSS) as well as anatomy of the leaf and the root when compared with the other two Yeasts + FYM treatments. However, there were no significant differences in most of these parameters between the Yeasts + ٧٠ MT FYM ha⁻¹ and the recommended mineral -N fertilizer treatment except for leaf and root NO₂⁻ and NO₃⁻ contents, where significant reductions occurred in the Yeasts + ٧٠ MT FYM ha⁻¹ treatment. The results of this study suggest that yeasts and FYM reduced the amount of synthetic chemical fertilizer needed for sugar beet production, and reduced the negative effects of chemical fertilizers on the environment.