

## Stability of *Solanum aethiopicum* Shum accessions under varied water deficit stress levels and identification of pertinent breeding traits for resistance to water shortage

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Drought is a major constraint to productivity of *Solanum aethiopicum* 'Shum' group due to loss in market and nutrient value of stressed plants. This study evaluated *S. aethiopicum* Shum group accessions to identify genotypes (G) that excel across moisture deficit stress levels (WLs). A split-plot arrangement composed of four WLs and twenty accessions of *S. aethiopicum* as main plot and sub-plot factors, respectively, was implemented in a greenhouse, and repeated for two experiments. In each experiment, there was a highly significant effect of at least two WLs on mean performance among at least two accessions for most of the traits at  $p < 0.05$ . Further, very highly significant  $WL \times G$  interactions were obtained for leaf relative water content (LRWC), leaves per plant (LPP) and plant height (PH), and non-significant for leaf blade length and leaf blade width. The order of priority as breeding traits for stability superiority across WLs was suggested as  $LRWC > PH > LPP$ . Consequently, based on LRWC, the most superiorly stable accessions were identified as accession 160 followed by accessions 145, 137, 108P and 184G while the least stable ones were identified as accessions 163G, 141, 163 and 108. The broad sense heritability ( $H^2$ ) for each of the three recommended traits for drought resistance breeding was above 0.9 thus supportive for a good response to selection. Drought stress negatively affected the performance of *S. aethiopicum* Shum group but the exhibited variation allowed for selection of superiorly stable genotypes.

**Keywords:** Drought stress, Leafy vegetables, Leaf relative water content, Plant height, Stability superiority