

**Title** Post-harvest water stress tolerance of various rose cultivars: screening and characterisation  
**Authors** S. Spinarova, L. Hendriks  
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### **Abstract**

The ability of roses to recover from water stress and subsequently to maintain a favourable water balance is assumed to be responsible for various post-harvest performances of rose cultivars. This paper contributes to developing a standard testing procedure for characterisation of water stress tolerance of rose cultivars by means of ultrasonic acoustic emission technique. Three hours de- and rehydration cycle repeated two times was found as the most suitable method to quantify water status of cut roses. Testing procedures included measurements of dehydration resistance, rehydration performance and cavitation control during de- and rehydration experiments. Roses with high dehydration resistance, expressed as a relative low weight loss during the first 3h of dehydration, which a completely regained the original weight during the second rehydration period were classified as water stress tolerant cultivars. Their cavitation profiles were characterised by (1) a strong increase of signal occurrence during dehydrations along and (2) relatively few hits during following rehydration phases (good cavitation control). Roses with a limited recovering potential (sensitive cultivars or non-optimal growing and handling conditions) often showed low dehydration resistance, no complete refilling and cavitation occurrence even during rehydrations. The detected water stress tolerance of studied cultivars was in a good agreement with their vase life potential.