

**Title** The use of hot water treatments to delay leaf yellowing in cut Asiatic lilies  
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### **Abstract**

Asiatic lilies are a popular cut flower worldwide and, in order to supply markets year round, several different cultivars are used that are suited to the different growing environments that occur during the year. In some cultivars, early onset of leaf yellowing during vase life can occur if the stems are grown under lower light environments that occur during the winter months. In these cultivars, leaf yellowing can occur as early as the first 2-3 days vase life even though the flowers themselves are acceptable for 7-10 days. In addition, some cultivars only show symptoms of leaf yellowing following cool storage, thus putting them at risk of poor performance if there are any delays in the distribution chain.

We have used a hot water dip as a novel method to delay leaf yellowing in stored or non stored Asiatic lilies. A matrix of treatment temperatures (45-55°C) and durations (2.5-5 min) were applied to determine the optimum treatment combination that would delay leaf yellowing without damaging the leaves. Assessments included chlorophyll fluorescence, chlorophyll content and chlorophyllase activity as well as visual and chromameter based changes in leaf colour. Preliminary results indicate that hot water dips in the range of 47.5°C to 50°C for 2.5-5 minutes is effective at delaying leaf yellowing. The mechanisms involved in delaying leaf yellowing are most likely by inhibiting active senescent processes.