

Cut flowers last longer with silver nanotechnology

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Once cut and dunked in a vase of water, flowers are susceptible to bacterial growth that shortens the length of time one has to enjoy the blooms. A few silver nanoparticles sprinkled into the water, might be the answer to longer-lasting cut flowers according to research published in the International Journal of Postharvest Technology and Innovation.

Once the stems are cut and flowers added to a vase bacteria start to colonize the open ends of the stems and block the channels through which [water](#) enters. This is the main cause of a short-loved display even for the most expensive flowers, such as lilies, roses and freesias. Many florists provide a small packet of plant food with their bouquets, but this does nothing to prevent the stems becoming blocked with bacteria. Adding a drop of household bleach is perhaps a useful tip, but not all flower lovers wish to have the odor of bleach in the vase spoiling the scent of their flowers.

Now, a team in the Department of Horticulture at Ferdowsi University of Mashhad, Iran, have tested [silver](#) nanoparticles, which are known to have antibacterial activity, in extending the blooming life of cut lilies (*Lilium orientalis* cv. 'Shocking'). They used suspensions of silver nanoparticles in water at levels of 5, 15, 25, 35 parts per million (ppm) and compared the floral life against controls with untreated vase water.

Seyed Hossein Nemati and colleagues found that control blooms gave a bright floral display on average for just under a week. Whereas the lower concentrations of silver nanoparticles extended this period by a couple of

days. However, at 35 ppm their blooms were maintained with good color and healthy petals for almost twice as long as the controls (less than 12 days). Analysis of the stems and water revealed that at this concentration of [silver nanoparticles](#) bacterial growth was stymied for the longest period compared with controls where [bacterial growth](#) began within the first two days.

More information: Nemati, S.H., Esfandiyari, B., Tehranifar, A., Rezaei, A. and Ashrafi, S.J. (2014) 'Effect of nano-silver particles on postharvest life of *Lilium orientalis* cv. 'Shocking'', *Int. J. Postharvest Technology and Innovation*, Vol. 4, No. 1, pp.46–53.

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