

Get touchy feely with plants

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Forget talking to plants to help them grow, gently rubbing them with your fingers can make them less susceptible to disease, a paper in the open access journal *BMC Plant Biology* reveals.

Gently rubbing the leaves of thale cress plants (*Arabidopsis thaliana*) between thumb and forefinger activates an innate [defense mechanism](#), Floriane L'Haridon and colleagues report. Within minutes, [biochemical changes](#) occur, causing the plant to become more resistant to *Botrytis cinerea*, the fungus that causes grey mould.

Rubbing the leaves is a form of mechanical stress. Plants frequently have to deal with mechanical stress, be it caused by rain, wind, animals or even other plants. Trees growing on windy shorelines, for example, sometimes respond by developing shorter, thicker trunks.

But plants also respond to more delicate forms of mechanical stress, such as touch. Some responses are obvious – the snapping shut of a Venus fly trap, the folding leaflets of a touched touch-me-not plant (*Mimosa pudica*) – whilst some are more discrete. Plants also launch an arsenal of 'invisible' responses to mechanical stress, including changes at the molecular and biochemical level.

Rubbing the thale cress leaves triggered a host of internal changes. Genes related to mechanical stress were activated. Levels of reactive oxygen species increased. And the protective outer layer of the leaf became more permeable, presumably to aid the escape of various biologically active molecules that were detected and which are thought

to contribute to the observed [immune response](#). This data could also suggest that the [mechanical stress](#) is perceived by mechano-sensors that subsequently initiate resistance.

Similar effects occur when plants are physically wounded. Team members previously showed how physically wounding thale cress increases levels of reactive [oxygen species](#), also triggering a strong, transient immunity to the grey mould fungus. Here they show basically the same thing, but in response to an extremely gentle form of wounding - mechanical stimulation by touch - that unlike wounding, leaves cells intact.

Wounding and rubbing exemplify how plants can react to a situation that in principle could cause them to become more vulnerable. Instead, they react to touch by deploying a carefully-orchestrated defence response, an evolutionary skill that that presumably boosts survival.

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