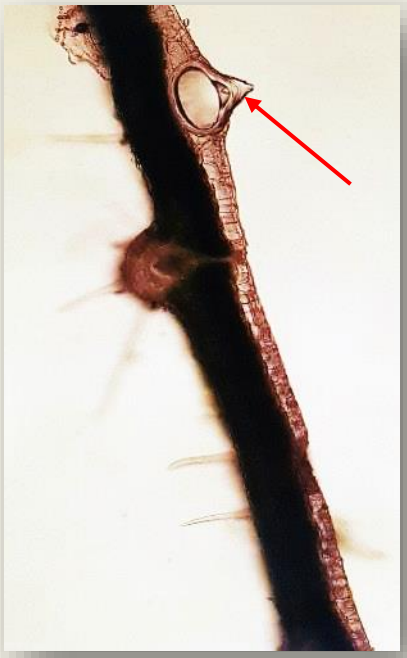
Sandpaper Fig

Ficus coronata

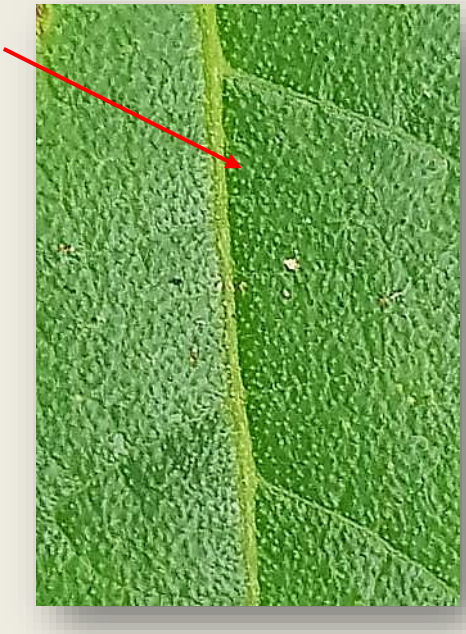
Australia has a number of sandpaper figs, but perhaps the best known in the Sydney region is *Ficus coronata*. This small to medium sized tree is common along creeks and rivers from Mallacoota in Victoria all the way north to Mackay in North Queensland.

Why the name *Sandpaper Fig*? Well, the leaves are quite abrasive, just as the name suggests and indigenous people used the rough, raspy leaves to smooth and polish wooden tools. But why do the leaves need to be so tough? Tough leaves can reduce herbivory, and toughness can be reinforced by minerals, such as calcium oxalate, calcium carbonate and silica, all three of which can be found in leaves of *Ficus* species from diverse habitats. Silicon is one of the hardest materials found in plants. It's readily absorbed from the soil and not only provides physical support for the plant, but is also a significant deterrent to insects and grazing mammals.



The abrasive upper surface of *Ficus coronata* is apparent in this photograph of a section of the upper surface of a leaf.

We cut a section through a leaf and in addition to hairs (*trichomes*) on the lower surface of the leaf, we found ***silicified trichomes*** (hairs thickened and hardened with silica) on the upper surface of the leaves.



As well as its sandpapery leaves, *Ficus coronata* provides an abundance of resources, not least the sweet, edible figs that ripen from green to black from January onwards.

Figs are weird, in that there are hundreds of tiny flowers on the *inside* of the fig and these are pollinated by fig wasps. When the flowers are ready to be pollinated, female wasps are attracted by pheromones only to the species of fig in which they were born. They enter the fig through a very small opening at the end of the fig, losing wings and antennae on the way, lay their eggs and die. The eggs develop into larvae inside the fruit; adult males emerge first, smaller than females and without wings as they won't ever leave the fig. They mate with the females then die, leaving the females, already fertilized, to emerge from the fig and to search for another fig where they can lay their eggs. Amazingly, the female wasps bore a hole through the wall of the fig to make their escape. At this point there is a drop in the level of carbon dioxide *inside* the fruit, triggering fruit ripening.

Larcombe D L, van Etten E. 2018. Sandpaper figs make food, fire, medicine and a cosy home for wasps. *Beating around the Bush. The Conversation*. https://theconversation.com/sandpaper-figs-make-food-fire-medicine-and-a-cosy-home-for-wasps-96404

US Forest Service, US Department of Agriculture: https://www.fs.fed.us/wildflowers/pollinators/pollinator-of-the-month/fig_wasp.shtml

Villard C, Larbat R, Munakata R, Hehn A. 2019. Defence mechanisms of *Ficus*: pyramiding strategies to cope with pests and pathogens. *Planta* 249:617–633 https://doi.org/10.1007/s00425-019-03098-2

Wikipedia: https://en.wikipedia.org/wiki/Ficus_coronata

Wikipedia: https://en.wikipedia.org/wiki/Ficus

Map based on Australia's Virtual Herbarium: https://avh.ala.org.au/occurrences/search?taxa=Ficus+coronata#tab_mapView

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