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# Going bananas for old methods

Ramy Azer has turned his traditional roots into a sustainable future, writes **Jennie Curtin**.

**I**f Ramy Azer succeeds in making paper from bananas on a commercial scale, he can probably thank his old Egyptian aunty for that.

"I started as a tree-hugger even before it was fashionable to be a tree-hugger, but an old aunty of mine put me in my place and changed my whole life. She said, 'If you chain yourself to a tree, you can only save one tree.'"

Aunty's words resonated with a young man who wanted to be as many trees as he could. "It dawned on me - the only way to save those trees was to remove the incentive for them to be cut down," he says.

Thus began a long journey to find an alternative source for paper, which gobbles up millions of trees every year. It eventually led Azer, who was born in Cairo, to mimic the techniques of his ancestors who made papyrus from giant reeds. But instead of using reeds, which occur in Australia only in Kakadu National Park, Azer turned to the trunks of banana plants, which usually are chopped down and left to rot on the ground after the fruit is harvested.

Azer's path to bananas was not a direct one. His first priority was to avoid trees, not only because

harvesting them for paper is unsustainable but because "wood is the worst material you want to make paper from", he says. "Trees are brown, ugly, hard, full of lignin and resin."

It takes enormous energy resources to transform them into fine, white paper.

He considered a number of other fibres, including hemp, but all had the drawback of being seasonal crops, abundant for a short time but needing to be stored to use out of season. They also required a heavy use of fossil fuels to transform them into paper.

Azer knew he had to find a residual fibre, something left over from another crop, and one grown on a massive scale around the world. Bananas fitted the bill. Not only are they prolific, perennial and plentiful, the fibres are white, long and strong, ideal for converting into paper.

But first there was a lot of research to do. Fortunately, Azer is a self-described "eternal student". He has three undergraduate degrees (German literature, engineering and management and mechanical engineering), two masters degrees (engineering science and technological commercialisation) and a graduate diploma in business enterprise.



He believes his constant learning is what has enabled him to reach this point: "It's through hard work, science and solutions - whingeing doesn't work."

When he was about to graduate as a mechanical engineer in Adelaide in 1995 (having moved there earlier with his South Australian wife, Phoebe), he saw a flyer offering a scholarship to help graduates to start their own business.

Azer pitched his banana papyrus idea, won the scholarship and began the 12-year process to make his dream a reality.

The end is now in sight. Azer's company, Papyrus Australia, which is listed on the stock exchange, has done the

development work, patented the process worldwide and successfully manufactured paper from banana tree trunks at a pilot plant in Adelaide. It is now building a commercial manufacturing facility in north Queensland.

The company's chief operating officer, Grant Pigot, says the plant is due to start production

next March and will demonstrate "that we can produce a range of products, as basic as fish and chip wrappings right through to commercial veneers that can be used in shopfronts or yachts".

After such a lengthy gestation, Pigot is understandably reluctant to divulge details of the process but describes the procedure of getting the banana fibre as "a

little like unwrapping a roll of Christmas paper".

But he's happy to talk about the green credentials of the new method: no use of chemicals, very low energy consumption and no water needed - in fact, water is produced as a byproduct.

Conventional paper-making, by contrast, uses 26 kilolitres, or

26,000 litres, for every tonne of paper produced, according to Australian paper industry's statistics.

Ramy Azer's family roots in Egypt stretch back 2500 years. Once Papyrus's paper starts rolling off the presses, or the banana trunk-equivalent, he is able to honour the memory of those ancient relatives.

Alternative source ... paper can be produced from banana

## THE PAPYRUS WAY

No trees needed

Uses banana trunks, previously left to rot

Plentiful source - 10 million hectares worldwide

Set up at banana plantation, reducing transport

Low energy input

Low carbon emissions

No effluent produced

No pulping so no need for water

No use of chemicals

Can produce a wide range of paper products