

### EFFECT OF STORAGE ON THE QUALITY OF PONGAMIA OIL

THE solid deposit from pongamia oil was reported to contain zinc salts of higher fatty acids and practically all the karanjin of the oil.<sup>1,2</sup> Experiments regarding the origin of the zinc and the conditions promoting the precipitation of karanjin have subsequently been made and the results are presented here.

A careful examination of the oil, of the seed cake and of the seed showed that no zinc was present in them. Obviously, therefore, it should have come from outside and the container should have been responsible for it. In our previous experiments it happened to be made of galvanized iron and we presume that the case was similar with the experiments of Manjunath and Rao. In a recent communication,<sup>3</sup> Jones and Haller have reported the presence of zinc in stored products and have isolated the zinc compound of bi-eugenol from commercial geraniol. With a view to make the position sure, samples of freshly-expressed pongamia oil were stored under similar conditions in glass bottles and in galvanized iron containers. In the first case even after five months there was no deposit whereas in the second case appreciable quantities were obtained even within a month and the bulk of the deposit increased rapidly with time. It was further noticed that within the first two months the solid consisted mostly of zinc salts and only later on the precipitation of karanjin took place. It seems to be clear, therefore, that the hydrolysis of the fatty oil is initiated and enhanced by the presence of zinc and that it is the first step in the changes taking place. The liberated acids combine with zinc to form the zinc salts and also cause the precipitation of karanjin. The last point was established by working with the oil present in glass containers and adding small quantities of glacial acetic acid. Karanjin began to separate in the course of a few hours and was complete in a few days. The precipitation was considerably enhanced by keeping the oil cooled in ice and

shaking occasionally. With 3 per cent. addition of acetic acid, about 3 days was found to be enough for the separation of most of the karanjin. The substance was quite pure and unmixed with any solid fatty acid. It could therefore be concluded that it is necessary to store the oil in glass containers in order to avoid rapid deterioration in quality and if quick separation of karanjin is desired, addition of an organic acid like acetic acid would be very helpful.

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<sup>1</sup> Manjunath and Rao, *J. I. C. S.*, 1938, **25**, 653.

<sup>2</sup> N. V. S. Rao and T. R. Seshadri, *Curr. Sci.*, 1940, **9**, 76.

<sup>3</sup> Jones and Haller, *J. A. C. S.*, 1940, **62**, 2558.

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### A MARGOSA TREE WITHOUT THE BITTER PRINCIPLE

IN a note appearing in a recent number of *Current Science*<sup>1</sup> Mr. Cherian Jacob has described an extremely interesting association of a margosa and banyan tree, in which the bitter principle of the margosa has been found lacking. The reasons adduced by the author to explain this phenomenon are untenable. The terms 'stock', 'scion' and 'grafting' have been used in a rather loose way. While there is no record of any vascular connection in epiphytes with the host tissues, it is difficult to determine the stock and scion in independently rooted plants. If the banyan tree could draw out the bitter principle, it would indeed be interesting to know whether the banyan leaves developed the bitter principle in them.

In this connection the writer wishes to mention that margosa trees without the bitter principle have been known to occur in many places. A margosa tree near Mandya, Mysore State, is an object of worship on account of

the fact that in one of the branches overhanging the walls of a temple, the leaves are devoid of the bitter principle, while the rest of the tree bears bitter leaves. This margosa tree is not found in association with banyan or any other plant.

It is quite manifest that the absence of the bitter principle is due to some changes other than the 'stock' influence of the banyan. The author mentions that it is not a genetic modification because the seedlings had leaves with the bitter principle. It would have been more convincing if observations were made in plants propagated from clones.

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<sup>1</sup> *Curr. Sci.*, 1941, 10, 335.

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I was much interested to learn of the occurrence, in Mandya, of a margosa tree, in which one particular branch bears leaves devoid of the bitter principle.

My object in publishing the note in the July number of *Current Science* was only to bring to the notice of the workers, about the existence of an interesting tree combination. I suggested that the banyan tree might have originally started as an epiphyte and later by the peculiar circumstances of growth described in the note, there is every reason to believe

that some parts at least of the two trees might have fused, and the banyan being now a much bigger tree might be influencing the margosa. I did not examine any section to find out whether there is any real fusion. I leave that for future workers. I do admit that the terms, stock and scion, have not been used in the scientific sense of the terms; they were used more with a view to connote the union of the two trees. It would certainly be interesting to study the behaviour of the seedlings raised from the seeds of the parent margosa tree. But I have no doubt that the seedlings found under the banyan-margosa tree combination are from the seeds of this margosa tree.

The suggestion I have made in my original note will stand, until definite evidence to the contrary is forthcoming. A critical examination of the Mandya tree and also of other trees without the bitter principle occurring "in many places" will undoubtedly be of much interest. When I was touring in Chingleput District in the Madras Province it was brought to my notice that a mango tree within the precinct of the Conjeevaram temple bears different kinds of fruits on the four sides of the tree. I examined the plant in question and found that the so-called single tree was the combination of at least two different varieties planted close to each other and now appear to have only one main stem.

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