

Vitamin E from Palm Fatty Acid Distillate

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Vitamin E is one of the essential vitamins in our daily diet. It has been associated with promoting fertility and slowing down of the ageing process. As more and more people become health conscious, especially in developed countries such as Japan and the United States, the demand for Vitamin E is expected to increase.

Traditionally, soyabean oil's scum has been the main source of Vitamin E but this is thought to be insufficient to cater for future needs. Palm oil, being the second largest vegetable oil produced in the world, is naturally a potential new source of Vitamin E.

Vitamin E is a fat-soluble vitamin which comprises of a group of compounds known as tocopherols and tocotrienols. These compounds are naturally present in vegetable oils such as palm oil and function as antioxidants *i.e.* compounds which protect the oils against oxidative deterioration.

A collaborative project on the recovery of Vitamin E from Palm Fatty Acid Distillate (PFAD) is being undertaken by the Palm Oil Research Institute of Malaysia (PORIM) and the Japanese Association of Industrial Fermentation (JAIF), which has been commissioned by Japan's Ministry of International Trade and Industry (MITI). Documents for this five-year project (1 April 1984 – 31 March 1988) were signed on 15 March 1984 at PORIM headquarters in Bangi, Selangor (Malaysia).

This is the first research and development project in the world on the technology for the concentration of Vitamin E from palm fatty acid distillate.

This collaborative project is undertaken as a follow-up to the successful results of three-year joint research conducted by Japan's National Chemical Laboratory for Industry (NCLI) and PORIM. Apart from confirming the

identification of the major types of tocopherols and tocotrienols in palm oil, the PORIM – NCLI joint project found that during physical refining, some Vitamin E was lost from the oil, and concentrated in the by-product, palm fatty acid distillate. PFAD is relatively cheap and therefore is a good source of Vitamin E.

Based on the crude palm oil (CPO) production in 1982 *i.e.* 3.51 million tonnes and an average free fatty acid (FFA) in CPO as received by refiners at 3.66%, it could be estimated that 128 466 tonnes of PFAD would be available. Assuming the Vitamin E content in PFAD at 0.4%, a total of 514 tonnes of Vitamin E could be obtained excluding other sources such as the leaves which also contain a high content of Vitamin E.

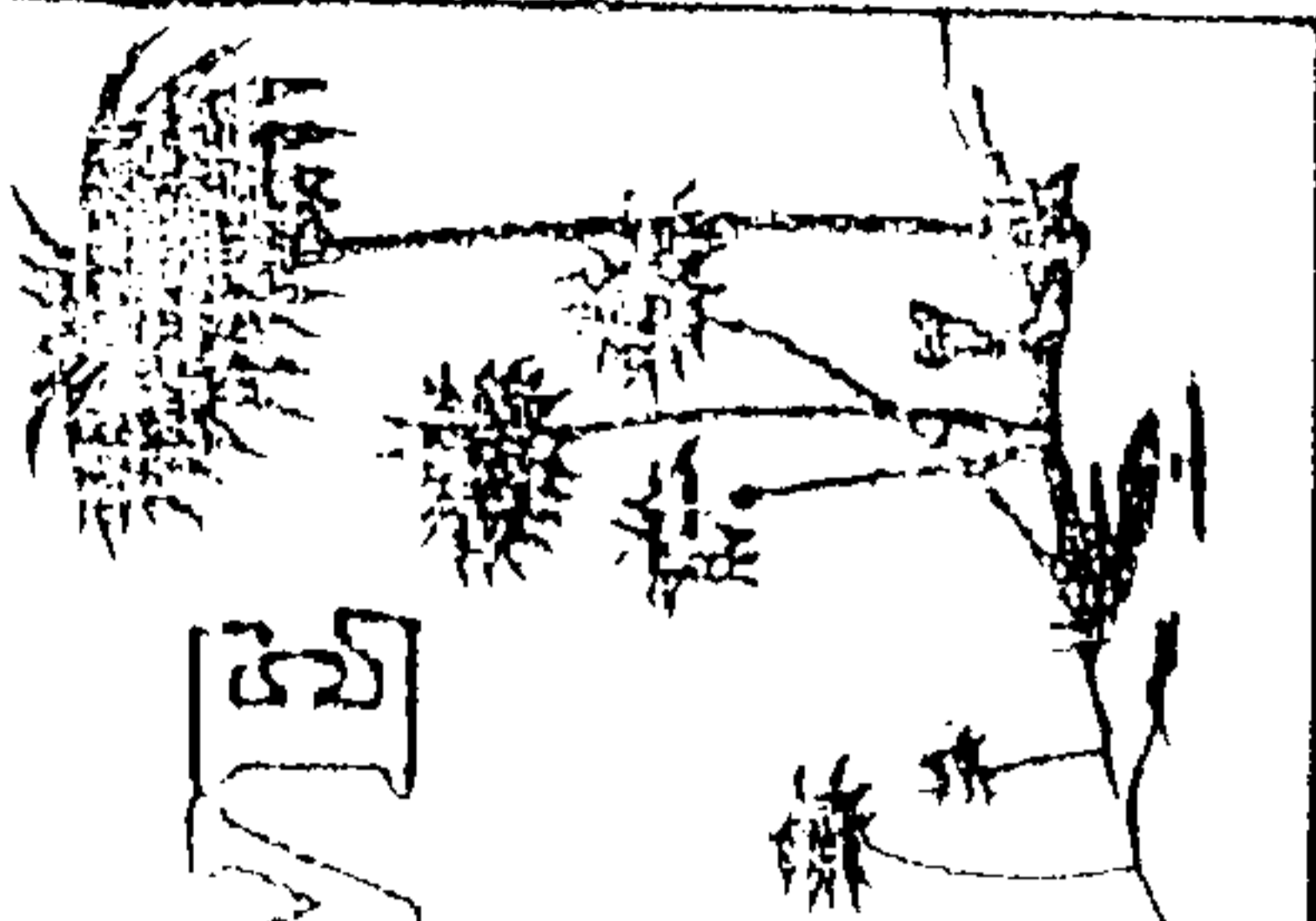
The scope of the project covers both laboratory and pilot plant studies with the objective of collecting data as regards to the commercial production of Vitamin E from PFAD.

The pilot plant, which consists of esterification, concentration and purification units, will be fabricated in Japan and set up at the PORIM headquarters, in stages. It is expected to be completed by 1987. The pilot plant will have a capacity of 200 litres per batch. This project will also involve exchange of personnel and the whole project is estimated at US\$2.2 million, mainly financed by the Japanese government.

Besides generating more income to the refining industry, this project represents one of the optimisations of utilisation of by-products in the Malaysian palm oil industry. Additional benefits include the possibility of obtaining other products such as sterols and methyl esters.

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This advertisement was printed from the original 100 year old block at the Blists Hills Industrial Museum in England. In the United Kingdom palm oil was already being imported from West Africa in 1800, but it was produced by primitive village methods and was only suitable for industrial uses. The palm oil trade was initially stimulated by the need for ship owners to find alternative cargo after the abolition of the slave trade.