



are as many as 60 firms manufacturing either synthetic or genuine fruit products. The quantities\* and the value of fruit products manufactured by these firms during the year 1949 were as follows:

Item	Quantity in lb.	Value in Rs.
Fruits (candied or crystallised)	670	685
Fruit juices, squashes, cordials, syrups etc.	40,325	49,038
Canned or bottled fruits.	3,10,795	3,10,293
Jams, jellies and marmalades.	8,651	497
Juices, (Pine-apple or grapes)	5,132	3,645
Pickles, chutneys, vinegar etc.	1,51,682	1,48,086
Total.	5,17,955	5,22,144

\* Figures compiled by the Bio-Chemist, Madras Agricultural Department, from the returns of the licensed firms in the Madras State.

The economic importance of the fruit products industry in our State is clear from the above figures. If, however, this important industry has to make any headway, sufficient confidence must be created in the public that our products compare favourably with the imported ones. It is not uncommon that unscrupulous manufacturers, with the object of making quick profits market as genuine products prepared from synthetic sweetening materials and attractive colours. These concerns should be suppressed in order to keep up the fair name of Indian products, by rigorous control of quality.

Sometimes it is difficult to differentiate the synthetic product from the genuine one by chemical analysis as the former can be made to simulate the latter in all respects. Thus a product can be prepared to the same analytical standard as a genuine fruit squash from entirely synthetic chemicals and a proportion of fruit pulp or juice sacs. The chemical analysis in such cases may not be of much use but a sure check can be maintained on such products by scrutiny of the processes in the factory itself.

Besides the type of adulteration mentioned above, there are others which can be detected only by a complete chemical analysis. The important of them are: (1) use of prohibited dyes (artificial colouring matter) to conceal the inferior quality of the product, (2) use of chemical preservatives in excessive amounts to make good the defective processing of the products, (3) use of synthetic sweetening agents like saccharin, dulcin etc. to make up the deficiency of sugar,

(4) presence of injurious metals like lead, copper, aluminium and tin either for a fraudulent purpose or by contact during the manufacturing process.

The artificial dyes are likely to be contaminated with injurious metals and other poisonous substances during the course of their manufacture. Their use in food industry must therefore be restricted to those whose harmlessness is beyond question. High standards of purity are set for such colours in all countries and these 'permitted dyes' alone should be used in the Fruit Products Industry.

Preservatives are chemical agents which serve to retard, hinder or mask the changes in food caused by spoilage or organisms. These chemical agents have a preservative action by virtue of the fact that they combine with the microbial protoplasm to produce a toxic effect on the cell. The substances that are toxic to micro-organisms may be harmful to the tissues of the human body also, when present in larger proportions. Sulphur dioxide (including sulphites) and benzoic acid (including benzoates) are the only permissible preservatives in fruit products. The maximum limits prescribed for these preservatives depend on the nature of the product. Thus in fruit juices, squashes and cordials, sulphur dioxide may be present to the extent of only 40 parts per million while sulphur dioxide can be present to the extent of only 40 parts per million in jam and benzoic acid to the extent of only 250 parts per million in a ketchup. It can be found out by chemical analysis whether the preservatives present in fruit products are the permissible ones and whether the proportions used are within the prescribed limits.

The manufacturer may have recourse to the addition of sweetening agents like saccharin either to make up the deficiency of sugar or to conceal inferiority of the product. These sweetening agents are considered as adulterants and their use in any fruit product should be prohibited.

The Government of India were alive to the necessity for controlling the manufacture and sale of fruit products in this country. With a view to upgrade the quality of this industry and to protect the health of the consumers, the Fruit Products Order, 1948, has been promulgated. The grade designations and quality specifications for different fruit products, natural as well as synthetic, were formulated and embodied in the Order. The provisions of this Order require every manufacturer to possess a licence for transacting business in fruit products.

The enforcement of this order has been vested in State Governments since March 1949. The Biochemist, Kodur, is the officer responsible for enforcement of this Order in the Madras State. He is

assisted by two inspectors, one analyst and one technical assistant. The inspectors visit all the manufacturing centres, satisfy themselves as to the hygienic requirements of the premises and take samples for despatching to the analyst. The analyst has to test and see whether the products conform to the specifications prescribed in the Order and send analytical reports to the Biochemist. On the strength of these reports the Biochemist can prohibit the sale and stocks of the fruit products, in respect of which quality specifications are contravened.

With the rise in standard of living and the growing emphasis on fruits as protective foods in the diet, the demand and the consequent production of processed foods and fruit products is bound to increase. It is essential, therefore in the interests of the health of the nation, that the existing provisions of the Fruit Products Order, 1948, be not only enforced rigorously but also make the quality specifications more comprehensive by prescribing minimum limits for vitamin and mineral content for the different products. The manufacturers may also be required to guarantee the vitamin and mineral content of their products and to display on the label of the pack the composition including the nutritive value of the product.

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## Cacao — Its Importance to South India and Cultural Possibilities

Cacao is both a beverage and a food crop. The world consumes about 500,000 tons of cocoa every year in one form or another. Cocoa powder, butter, paste, chocolate powder, covering chocolate and nut and milk chocolates are some of the more important products that have become popular the world over. British West Africa till recently produced half of the world's requirements, the rest being supplied by Brazil, Nigeria, Colombia, Venezuela, Trinidad, St. Thome, Costa Rica, Santa Domingo, Nicaragua and Ceylon. In the past few years the cocoa industry of the leading country viz., British West Africa has suffered one of the most serious threats to its existence in the form of a virus disease known as 'swollen-shoot'. It is reported that several millions of trees are dying due to this cause every year. The disease has been found to be very difficult to prevent or control. As such, the world markets for cacao are already in search of other regions or countries for their supplies.