MORPHOLOGICAL AND ANATOMICAL INVESTIGATIONS ON ARTOCARPUS FORST.

IV. The Fruit*

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INTRODUCTION

The present communication deals with the fruit of *Artocarpus*. The plant is important economically and apart from wood, timber and biochemical utility, some species are well known for their fruits. The jack-fruit (*A. heterophyllus*) and the bread-fruit (*A. altilis*, the name is associated with the story of voyage of Captain Bligh and the famous mutiny on the Bounty) are now cultivated in different parts of the world. The fruit in *A. heterophyllus* attains an enormous size and is considered to be the largest fruit in the world (Cowen, 1950). Other species like *A. lakoocha* (‘barhal’ or ‘monkey-jack’) and *A. integer* (‘Champedak’), etc., also yield edible fruits of smaller size.

The material was collected locally and from different places as described earlier (Sharma, 1962). Dissections under binocular, hand sections and microtome sections of variable thickness of the fruit of different ages were obtained and stained by usual customary methods.

OBSERVATIONS

*External morphology.*—After anthesis, the whole female inflorescence increases and develops into a composite or multiple type of fruit (Fig. 1). The size, shape and quality of the fruit are variable not only in different species but also in different varieties of the same species. *A. heterophyllus* is a caulifloral species and the female inflorescences produced on the main trunk and stout branches develop into jack-fruits which hang down from the trunk or main branches. This species has two more or less well-defined varieties, ‘Barka’, a smaller and inferior variety and ‘Kapa’, a large superior variety.

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(Manjunath, 1948). The former is locally called ‘Katahali’ and yields small fruits which are somewhat sour in taste and weigh four to fifteen pounds each. The latter variety locally called ‘Kathal’ yields large fruits weighing nearly up to eighty pounds and at ripening has fleshy sweet perianth. Some fruits may be borne at the ground level or even below.

Bread-fruit (A. altilis) is somewhat similar to jack-fruit but is not caulifloral. Just before anthesis, the inflorescence is small, globular or sub-globular and measures 2.5 to 3.5 cm. Thereafter it grows rapidly and a fully mature fruit measures 20-35 cm. in diameter. The fruit of A. integer, ‘Champedak’, resembles that of A. heterophyllus when young, but remains smaller in old condition. According to Corner (1952), “.... the ‘Champekak’ has the strongest and richest smell of any in creation”. In A. rigidus and A. hirsutus the fruits are globular or sub-globular, small and non-edible. All species described have conical, spiny or horny projections on the fruit surface.

A. lakoocha yields ‘monkey-jack’ commonly known as ‘barhal’ in India. It is very different in appearance from fruits of other species. In this species, even the male inflorescences appear like small orange or yellow coloured ‘fruits’ and are used in culinary. The actual composite fruit when young is globular but becomes irregularly lobed at maturity and measures 6-12 cm. in diameter. The fruit is eaten after ripening and tastes sweetish sour.

Dissection of several fruits of A. heterophyllus revealed that, on an average, the superior ‘Kapa’ variety (‘Kathal’) has ten thousand to twelve thousand flowers in a composite fruit and that the number of normal seeds produced varies from fifty to two hundred per fruit. Besides, there are about two hundred or more ill-developed seeds intermixed with the normal ones. The inferior variety ‘Barka’ (‘Kathali’) has eight to ten thousand flowers per composite fruit and only twenty to fifty seeds are produced in a fruit. In one rather underdeveloped fruit measuring 12.5 × 7.5 cm., there were found only four normal and about ten ill-developed seeds, all in the upper half of the fruit. It is interesting to note that the unfertilized or sterile flowers also develop and take part in the formation of composite fruit that is actually a spurious fruit developed chiefly from the perianth.

In a Malayan variety of A. altilis, the composite fruit has 1500-2000 flowers of which about 30 develop normal seeds. In A. lakoocha, the so-called fruit has about 2600 flowers, majority of them are sterile and only twenty to fifty develop seeds.