

The wild Gingelly of Malabar

(*Sesamum orientale*, Linn. Var. *malabaricum*, Nar. var. nov.)

Sesamum orientale, Linn. = *S. indicum*, Linn.

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Sesame, *Til* or gingelly is an important oilseed and an article of food. It has been found in cultivation in the tropical countries, particularly in India and the Orient from very ancient times. All the cultivated forms and types come under the species *Sesamum indicum*, Linn. It is not known to have been found in the wild state by the earlier systematists. Hooker (1885) mentions three species of *Sesamum* of which *S. indicum*, Linn. is one. Gamble (1924) also has described the same three species as Hooker. Thiselton Dyer (1906) speaks of 17 species of *Sesamum* including *S. orientale*, Linn. But none of these authorities has mentioned any varieties of *S. indicum*, Linn. The species is very variable, growing as it does over a wide extent of the globe, for many centuries. Kashi Ram (1929) described 30 types of *Sesamum* occurring in India and Burma.

The Oilseeds section of the Department of Agriculture, Madras (Coimbatore) has been studying all available gingelly material collected or obtained from various places from 1930 onwards. In the collections maintained at the Groundnut Research Station, Tindivanam (S. Arcot, Madras) there is one distinct variety collected from the hills of Malabar. While the ordinary cultivated gingelly is found only in the fields, this variety is always found only on the uncultivated laterite hill tops of the west coast in a wild state and is always self sown. The seed which is quite distinct from any of the cultivated types of South India is not known to be collected or made use of by the people of the locality. The duration of the variety is about $4\frac{1}{2}$ months. It has one unique character namely that it can withstand even a rainfall of 750 inches during its life time and is not adversely affected by it while none of the cultivated types can grow well under heavy rain and are therefore never grown during the period of heavy rainfall. Therefore the wild variety was crossed with S. I. 263/3, S.I. 209/8 and S.I. 94/2 (selection from the local-Tindivanam) so as to evolve economically useful strains. The S. I. numbers refer to cultivated gingelly strains of the Tindivanam

station. Three crosses namely X 30, X 35 and X 38 were produced. One economic selection from the F_3 progenies of X 38 was found to be the best and it is now the popular strain called TMV. 3 gingelly of the Department. It has done well both as a summer and also as a rained crop giving an increased yield of seed of 20—30 per cent. over the local type—one of the original parents. The crossing work with the wild gingelly was started in 1934 and the new strain was first spotted out in 1941.

The wild gingelly is known to have been collected by systematists from time to time. The earliest specimen of the variety in the Madras Herbarium (Coimbatore) was collected as early as in 1884 at Trichur (Cochin). Subsequent collections were made in 1900 at Sullia in S. Kanara, Ichipalle Reserve Forest in Coimbatore District in 1924, Walayar—Malabar in 1929. Though the name wild gingelly "Kattu Ellu" was entered in some of the sheets in the Herbarium, they were all identified as *S. indicum*, Linn. Its habitat extends from Malabar to parts of Bombay and Central Provinces. As already mentioned the variety is unique in having very long duration and capacity to withstand very heavy rainfall; further the percentage of oil is only 32 as against 50% in most cultivated types. The seed characters also are quite different from those of cultivated types. Also it has been found gregariously in the wild state. Therefore, it is now described as a distinct variety. It freely crosses with other cultivated types of gingelly giving a high percentage of fertile hybrids. The chromosome number ($2n$) is 26 as in any type of gingelly.

Abraham (1945) reports that the wild sesame of Travancore though closely related to the cultivated sesamum in certain characters is quite distinct from *S. orientale*. His cytological investigations appear to have lent him support to the view that it is a new species hitherto undescribed and he has provisionally named it as *S. grandiflorum*. His hybrids of the wild sesame with *S. orientale* are said to be totally sterile. Therefore it is probable that the particular wild sesame of Travancore of which the writer mentions is different from that of Malabar. However Abraham's description of the Travancore wild sesame is not available for confirmation.

Description of the wild gingelly from Malabar
S. orientale, Linn. Var. *malabaricum*. Nar.: An erect, shallow rooted, much branched annual herb, with conspicuous purple flowers,

growing to a height of 2—5 feet, gregarious and met with in the wild state on the low laterite hills of Malabar and elsewhere from July to November every year. It has a life period of about 4½ months. *Stem* green or tinged with purple, quadrangular with a longitudinal groove running the whole length of each side, pallid gland dotted all over and hairy; hairs minutely gland tipped. *Leaves* heteromorphic, opposite, ex-stipulate long petioled towards the base. In well grown specimens petiole is 4 inches long and lamina 4" x 3½", ovate acute, shallowly or deeply three-lobed, margin distinctly or indistinctly dentate, upper surface darker green with impressed veins, lower surface paler, distinctly veined. The leaves get reduced in size towards the top where they are sub-opposite or alternate, subsessile and entire, lower surface conspicuously hairy and gland dotted like the stem. Glands rather sticky when not exposed to rain. *Flowers* purple, conspicuous, solitary in the axils of leaves, towards the tops of branches, very short pedicelled, with two yellow glands at the base; each gland with a narrow bract. *Calyx* about 1/5th inch long, deeply five lobed, lobes narrow pointed, very hairy, persistent. *Corolla* $\frac{3}{4}$ —1 inch long light purple when open (in the mornings) and gradually becoming deeper in colour and dark purple when it withers in the afternoons; constricted at the base, gibbous, then expanding; limb 5-lobed, lobes broad, the middle lobe of the anterior half of the limb is always deep purple, longer than the rest by $\frac{1}{4}$ inch and acute while the others are obtuse; a dark purple crescent surrounds a blotch of yellow guide on the anterior side within the corolla tube. The guide leads to a deep yellow bar towards the base of the tube. The purple dots below the bar are very distinct and numerous; the corolla tube within is purple dotted all over. *Stamens* four, didynamous, each anther with a dark purple longitudinal line along the line of dehiscence; *Ovary*, superior, mounted on a glandular disc and two celled; *style* erect, long and stigma bifid. *Fruit*, erect, $\frac{3}{4}$ inch long, 4-loculed septicidally dehiscing, somewhat woody (4 sided); *capsule* longitudinally grooved on each side between rows of seeds, tip of fruit obtuse or rounded with an abrupt short acumination about 1/30 inch long. Number of seeds in a capsule about 64 in four, single rows. The number of fruits in a plant varies considerably and in a vigorous plant it may be as high as 300 or 400. *Seed* small, black, ovate, 1/10 inch long and 1/32 inch thick with two distinct faces or sides; each face is distinctly rugose and bounded by a raised sharp margin; border connecting the two sides of the seed is abrupt. Percentage of germination is low. Seed is rather bitter to taste.

This wild variety of Malabar does not fully conform to any of the descriptions of the 30 types of sesame given by Kashi Ram. The seed only resembles that of type 24 and the plant has the habit of type 25, but the corolla is different. Type 18 of Kashi Ram has the lowest oil content viz., 37.88% while the Malabar wild gingelly has the record of low percentage of 32 (ether extraction).

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Some Lessons of the Bhagavadi Demonstration Farm

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The Bhagavadi Demonstration farm represents a unique effort of the department and it is perhaps the only one of its kind. Its objective is not the straight one of modernising agriculture by translating the results of research to the ryots' stock of knowledge and practices; but merely to find out, in the words of the original, the reaction of the ryot to tested measures of improvement; and the methods adopted are not obtrusive, but are directed to a close observation from behind the screen, of the path of these improved methods and means of cultivation in the lands of a chosen population of ryots. This is obviously a technique seldom adopted for propaganda and although the farm is euphemistically named a demonstration farm, there is the least attempt to demonstrate. It should not be surprising that, for that very reason, the results are more revealing and the insight closer; for as is often said, none knows when the acorns giving rise to huge forest trees are sown in a forest, while, when a tree falls, the whole forest reverberates with the noise.