

NOTE

Persimmon (*Diospyros virginiana*, Ebenaceae) and Mayapple (*Podophyllum peltatum*, Berberidaceae): Proximate Analysis of Their Fruits.—We give here a proximate analysis (Table 1) of two of the best-known indigenous, fleshy fruits of eastern United States, the American persimmon (*Diospyros virginiana*) (Fig. 1) and the mayapple (*Podophyllum peltatum*) (Fig. 2). We collected ripe persimmons and mayapples in Campbell County, Kentucky, in summer and fall 1991.

The first of these, the persimmon (Fig. 1), is a member of the largely tropical ebony family (Ebenaceae); its genus is of commercial importance primarily for a prized, Old World wood, ebony, and for a widely cultivated fruit tree, Japanese persimmon (*D. kaki*). Our species, although usually a small to medium-sized deciduous tree, can attain a height of 125 feet and a trunk diameter of 30 inches. Found in fencerows, old fields, and woods, *Diospyros virginiana* ranges from Connecticut to Iowa, south to Florida and Texas (Little, 1971, U.S.D.A. Misc. Publ. 1146; Skallerup, 1953, Ann. Missouri Bot. Gard. 40:211-224).

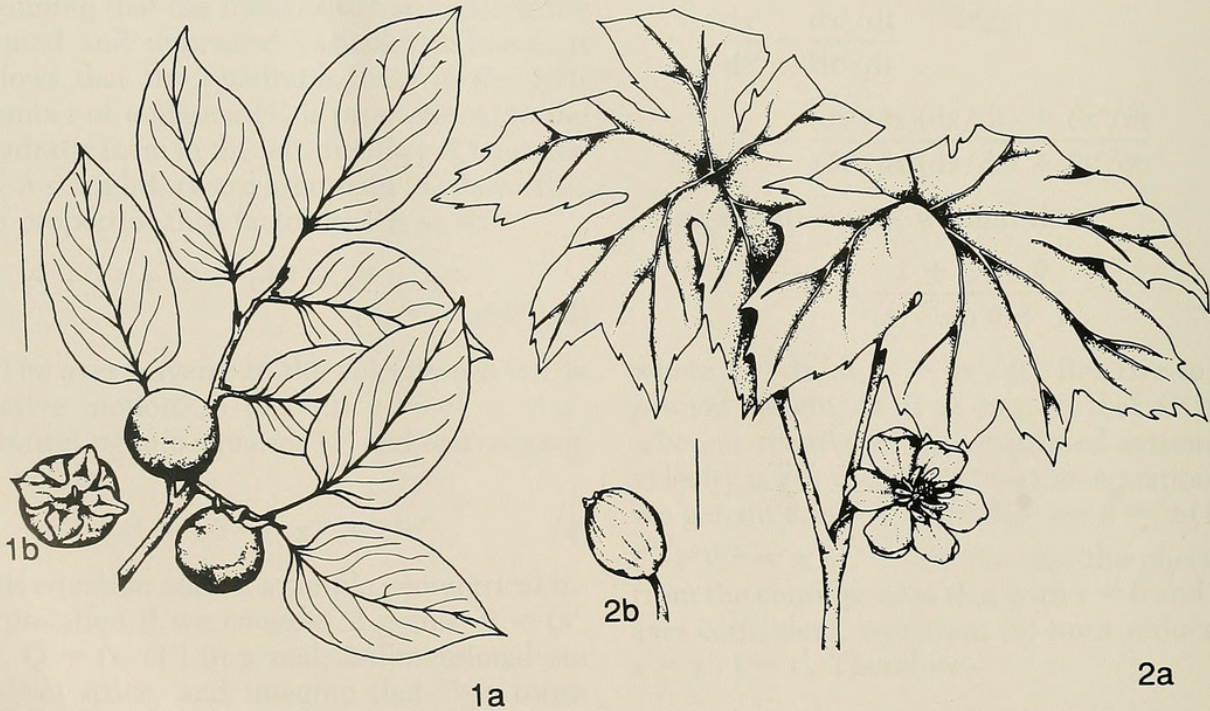
Persimmon fruits, more or less globose or somewhat oblate (ca. 2.5-7.5 cm in diameter), are orange to red-purple or even dark red when ripe and usually contain several flattened, brown seeds. In our collection (n = 13) the average fruit weight was 11.1 g, with 1-8 seeds per fruit (ave. = 4). The seeds constituted ca. 43% of the total fruit wet weight.

Although folk wisdom dictates that persimmons must be frosted or frozen to remove the intensely puckery quality (caused by tannins), such is not necessarily the case,

some trees ripening their saccharine fruits as early as mid-August. Various birds and mammals—including humans—feed upon the fruits, which may be eaten out of hand or made into pudding, syrup, vinegar, or preserves (Fletcher, 1915, U.S.D.A. Farm. Bull. 685; Gibbons, 1962, Stalking the Wild Asparagus, David McKay Co., New York). According to Church and Church (1989, Food Values of Portions Commonly Used, 15th ed., Lippincott, Philadelphia), the “persimmon” (probably the Japanese species, although this is not specified) has an unusually high carbohydrate content, 33.6%. In our study, the fruits of the American species had an average carbohydrate content of 26.0%. This high value is uncommon in fruit, but comparable to passion fruit (23.3%), custard-apples (25.2%), bananas (23.4%), and sapotes (33.8%) (Church and Church, op. cit., 1989). A high sugar content may account for the reportedly long length of preservability of the fruit (Gibbons, op. cit., 1962).

The mayapple (Fig. 2), an unmistakable, herbaceous and rhizomatous species of the barberry family (Berberidaceae), grows, often in large clones, in woods and meadows from Quebec to Minnesota, south to Florida and Texas. Although the rhizomes and other parts of the plant, including the green fruits, are poisonous, the ripe fruits are considered edible (Ernst, 1964, J. Arnold Arb. 45:1-35).

Mayapple fruits, green-yellow to yellow when ripe (mid-to late summer), are many-seeded and about the size and shape of a hen's egg. Our collection (n = 48) had an average weight of 13.4 g per fruit, with 34.3% of the total weight being made up of seeds and attached arils. Though de-



Figs. 1, 2. Fig. 1. Persimmon (*Diospyros virginiana*). a. Fruiting branch, b. fruit viewed from above. Vertical line = 4 cm. Fig. 2. Mayapple (*Podophyllum peltatum*). a. Distal portion of plant in flower, b. fruit. Vertical line = 5 cm.

TABLE 1. Proximate analyses of fruits of persimmon (*Diospyros virginiana*) and mayapple (*Podophyllum peltatum*); figures are averages.

	Persimmon	Mayapple	Persimmon ^b
Fruit weight (g)	11.1 ± 0.71 ^a (n = 13)	13.4 ± 0.8 ^a (n = 48)	25
% water	71.1 ± 0.43 ^a (n = 11)	94.7 ± 0.2 ^a (n = 1)	64.4
% lipid	1.67 ± 0.16 ^a (n = 3)	0.03 ± 0.01 ^a (n = 6)	0.4
% ash	0.64 ± 0.04 ^a (n = 8)	0.34 ± 0.04 ^a (n = 6)	0.4
% protein	0.60 ± 0.08 ^a (n = 5)	0.88 ± 0.17 ^a (n = 5)	0.8
% carbohydrate (calculated)	26.0	4.0	33.6

^a SEM.
^b Values are those given in Church, C. F., and H. N. Church. 1989. Food Values of Portions Commonly Used, 15th ed. Lippincott, Philadelphia. Species was unidentified.

scribed by Asa Gray as “mawkish, eaten by pigs and boys,” they may be used raw or for excellent preserves, especially a “luscious” marmalade (Fernald and Kinsey, 1958, Edible Wild Plants of Eastern North America, Harper, New York). We found mayapples to have an extremely high water content, higher even than watermelon (92%), grapefruit (91%), “melons” (90%), or papayas (89%). However, several vegetables have comparably high water contents, e.g., cucumber (96%), summer squash (94%), and sweet green peppers (92%) (Church and Church, op. cit., 1989).
In our laboratory, proximate analyses were performed on freshly collected ripe persimmons and mayapples, un-

peeled and with seeds removed. Water content was calculated as a percent difference from fresh weight after drying at 100°C for 24 hr. Percent lipid was determined by ether extraction of the dried samples. Protein analysis was done using micro-kjeldahl methodology and a nitrogen conversion factor of 6.25. For mineral content, samples were ashed at 600°C in a muffle furnace. Carbohydrate content was estimated by subtraction of water, lipid, and mineral content from original net weights.—**Debra K. Pearce** and **John W. Thieret**, Department of Biological Sciences, Northern Kentucky University, Highland Heights, Kentucky 41099.



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