

Che: Chewy Dollops of Maroon Sweetness

Lee Reich

Among the attractive qualities of *Cudrania tricuspidata*, the fruit—for me—is the main draw. In fact, I wish that I had become better acquainted with che, one of the plant's common names, soon after our introduction. That first meeting was in 1979 at the home of renowned fruit breeder George M. Darrow, then ninety years old and retired from the U.S. Department of Agriculture. His dooryard che, unfortunately, had no fruits ripe for sampling. In the years that followed, I occasionally

happened upon the plant on the printed page where I found lukewarm descriptions of the fruit's flavor—"mild watermelon," for example. Almost twenty years after our introduction I decided, finally, to plant a che and evaluate the fruit for myself; a year later I tasted my first fruit. It was very good and nothing like a "mild watermelon."

Were you to meld all the characteristics of a fresh fig and a mulberry—both, incidentally, relatives of che—you would end up with some-



LEE REICH

Che's aggregate fruits combine the flavors of fresh figs and mulberries: neither quite as rich as a fig nor quite as sweet as a mulberry.

thing very close to a che fruit. To wit, che is an inch to an inch-and-a-half across, round, and a dull maroon with a rich red interior, a slightly chewy texture, and a few edible seeds. The flavor is most definitely fresh fig plus mulberry although neither quite as rich as the fig nor quite as sweet as the mulberry.

Che, like mulberry and fig, is an aggregate fruit, the individual fruitlets more or less coalesced. The surface texture most closely resembles that of yet another relative, the osage orange (*Maclura pomifera*), whose four-inch-diameter, green-skinned orbs are completely inedible. Deliberate hybrids—with the euphonious and likewise hybrid name *Macludrania hybrida*—have been created between osage orange and che, the first in France in the latter half of the nineteenth century. The goals for creating such hybrids were not specified—perhaps a baseball-sized che fruit?—but the original ones, using che as the male parent, most closely resembled their father in plant form. Hybrids derived from those French plants were planted at the U.S. National Arboretum in 1960 and were said to look like thornless osage orange trees. Their hybrid origin has since been questioned and, in any case, little mention has been made of their fruits.

Che fruit itself is rarely mentioned, even in writings from China where che is native. The plants have been valued by the Chinese for their leaves, as feed for silkworms. Although the silk produced from them was said to produce lute strings with a particularly clear sound, their leaves were used only to supplement mulberry leaves as feed, perhaps because thorny stems make picking them more difficult.

It was in the latter half of the nineteenth century that che first made its way to the Western world. It has been grown in France since 1862 and in England since 1872 with no mention made of its fruit production or use. It first arrived in America in 1909 among a few thousand other cuttings and live plants sent over from China by E. H. Wilson. By 1912, a tree at P. J. Berckman's Nursery in Augusta, Georgia—presumably derived from that introduction—was twelve feet high and bearing a bushel and a half of fruit. The following year another shipment arrived from China, sixteen

rooted plants sent over by the U.S. Department of Agriculture's plant explorer Frank N. Meyer for testing in drier regions as a hedge plant for gardens and a living fence for farms and, in less arid regions, for bank stabilization.

Today, che remains relatively unknown as a fruit or a plant, despite the plant's early and reliable fruit production, its resistance to pests, and its probable (judging by the closely related osage orange) wide adaptability. It even lacks a widely accepted common name, having been also called cudrang, mandarin melonberry, silkworm thorn, and—derivation unknown—storehousebush in English, and in China, *tcho sang* (wild mulberry), *tsa, tse-tsang* (thorny mulberry), *cha-shu, poh-hsi, shih, nu-che*, and, of course, *che*. Yet, given the quality and productivity of even unselected seedlings, che is surely an uncommon fruit worthy of attention, especially if some of that attention were directed to selecting or breeding plants that were thornless, bore well without pollination, and ripened earlier.

The Plant

Cudrania triloba has been variously described as a large shrub or a small tree usually growing to a height of about twenty feet, occasionally soaring to sixty feet. Some suckers are produced at the base of the plant and, with age, the tree develops a spreading, flattened top and a bark that ripples with deep furrows. A sprawling, almost vine-like habit has been ascribed to some of the shrubbier sorts. But many kinds of plants change morphologically (beyond attaining the capacity to flower) as they transition from juvenility to maturity. As examples, citrus lose their thorns and English ivy changes from a vine to a woody shrub. Vining behavior and increased thorniness could merely be descriptions of juvenile che plants.

Che's thorns are an unresolved issue. Although the plant is typically thorny, branches higher up in older plants frequently are thornless. Dr. Darrow propagated two plants from thornless branches and, while one of the two remained thornless, the other eventually grew thorny new shoots. The question arises, then, whether we have here a chimera—a plant made up of two kinds of genetically dissimilar cells,



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E. H. Wilson photographed these two Cudrania tricuspidata in August 1918 in Japan, where they had been planted roadside. He noted that they were forty feet in height and in girth of trunks, four and seven feet.



Frank N. Meyer's photograph of this very interesting trunk is dated January 1914. His legend reads, "Cudrania triloba. Village of Yo tze ko, south of Sianfu, Shensi China. The peculiar looking trunk of a Chinese osage-orange called 'Teho che shu.' The leaves are occasionally used for feeding silkworms. Locally the small red fruits are considered unwholesome."

in which new plants propagated from one set of cells may be thornless and from the other set thorny—or perhaps it is merely a question of juvenility versus maturity, with juvenile stems, as in citrus, being the thorny ones. In that case, plants propagated from vigorous stems near the base of a seedling tree will be juvenile and thorny while those propagated from stems higher in the tree will be mature and thornless. Cytological studies and observation of seedling plants as they mature would resolve this issue.

The shape—or, I should say, shapes—of che's leaves are similarly variable. In 1877, a Dr. Hance, who had assigned to che the botanical name *Cudrania triloba*, wrote that it was "an unfortunate specific name, as the foliage seems highly variable." The plant's specific name was later changed to *tricuspidata* although the leaves are sometimes entire or indistinctly lobed and sometimes three-lobed. Increased lobing of leaves, incidentally, is another characteristic of plant juvenility that might be lost with maturity, another change exemplified in maturing English ivy plants. Che leaves remain healthy and green throughout the growing season, then drop without fanfare.

Che flowers are as hard to pin down morphologically as are the leaves. Mostly, plants are either male or female (dioecious), but male trees frequently bear some fruits (which only follow female flowers) and female trees frequently yield good crops without male pollinators. Like some varieties of persimmon, male or female che plants might bear a few flowers, perhaps whole branches, of flowers of the opposite sex. This explanation seems more likely than parthenocarpy because ripened fruits typically have a few seeds in them, which indicates that pollination did occur—unless che is among the few plants capable of producing seeds solely from mother plant tissue, without pollination (i.e., it is apomictic). The waters are further muddied by a possible link between thorniness and gender; Dr. Darrow observed that, on one plant at least, thorny stems acted like males: they were fruitless but their presence made female stems fecund. Gender questions could be answered with close observation and controlled pollinations.

Che flowers—small, yellowish-green in rounded heads—are reliably borne, either singly or in small groups, in the axils of leaves on growing shoots. Fruiting is equally reliable because the flowers open late, about the time that mulberry fruits are just starting to ripen. Plant a che tree and it will not have you waiting long for those first flowers or fruits; my plant—a clone—yielded both the year after planting.

Cultivation

The etymological meaning of "che" is "stony ground," indicating its natural habitat. Just because it tolerates drought and poor soil does not mean that it would thrive best and yield the most luscious fruits on such ground. I give my che the same good soil—well cultivated, moderately fertile, and humus-rich—enjoyed by my other fruits. Good drainage is important.

Che is said to prefer a warm soil. This requirement probably has basis, especially if a warm soil infers also a warm site, because in northern regions such a site would be needed to ripen the relatively late ripening fruits. The plant itself is hardy to USDA zone 5 or 6 and also grows well into subtropical regions, although individual clones might better tolerate either end of this climate spectrum.

Che is a plant that performs well with little or no regular pruning. Prune the young plant so that each of its main branches has plenty of room, then, when the plant matures, do nothing more than cut off any dead, broken, or out of place branches that you might find. Drastic shortening of any branches that become decrepit will stimulate vigorous, new shoot growth on which flowers and fruits are borne.

You may want to prune the tree more heavily if you are feeling regal, in order to extract a reddish yellow dye from the pruned stems. The Chinese used so-called "che yellow" for coloring imperial garments.

Propagation

Che is easy to propagate by any one of a number of methods. Seeds germinate readily if sown immediately upon removal from the fruit, or, if stored, after a period of cool, moist stratification. Be forewarned, though: seedlings may take up to a decade to bear fruit.



The leaves on these branches of Cudrania tricuspidata appear to have lost their juvenile variability.

As previously mentioned, cloned plants bear at a very young age. Take semi-hardwood cuttings after midsummer, ideally treating them with rooting hormone and then putting them under mist. Root cuttings are another method of clonal propagation.

Che takes well to all sorts of grafting techniques. Grafting seedlings onto mature plants is one way to shorten the juvenility period and so more quickly evaluate their fruits. Create more robust and tree-like specimens by grafting che on osage orange rootstock.

Harvest and Use

Although che fruits ripen late in the growing season, be patient with their harvest because they are tasteless until softened and dead ripe. Do not expect the fruits to drop into your hands at that time; each che has to be plucked individually (a case for parthenocarpy). Likewise, do not expect to pick the fruits all at once, because

they have a long ripening season, a month or more. Here in New York (zone 5), my che fruits begin ripening about the middle of October, about the same time as has been reported from the mountains of Virginia and a couple of weeks after times reported from near Washington, DC. Reports of first ripening in November in California and August in Georgia possibly highlight different ripening seasons for different clones.

Che bears heavily—Darrow reported hundreds of pounds on a mature female tree. What fruits you cannot eat at one sitting will keep for several days under refrigeration. Still more than you can eat? Blend the fruits, then strain out the seeds for a delicious nectar.

Formerly a fruit researcher for the United States Department of Agriculture and Cornell University, Lee Reich, PhD, is currently a garden writer and consultant (www.leereich.com). Che is one of the fruits featured in his book *Uncommon Fruits for Every Garden* (Timber Press, 2004).