

Cannabis sativa Plant Identification and Its Look-Alikes¹

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The purpose of this document is to provide an identification guide for *Cannabis sativa* to be used by growers and land managers by showing key factors to distinguish it from similar-looking plants. The general public and aspiring botanists may also use this document to see how a plant is defined botanically and how those characteristics can distinguish a plant of interest from other look-alike plants.

Cannabis, Hemp, Marijuana, Pot, Weed

Cannabis sativa L. from the family Cannabaceae is a highly recognizable plant the world over. Native to central Asia, it evolved with some of the earliest human civilizations and has since distributed globally, where it grows in both wild and cultivated settings (Tancig et al. 2021). *Cannabis sativa* is commonly known as cannabis, hemp, marijuana, pot, or weed. The palmate, deeply sharp-lobed leaves are distinctive and often used in popular art and culture. It can be grown for fiber, seeds, and flowers, then further processed into biomass, oils, and chemical compounds called cannabinoids and terpenes (Kaur et al. 2021). Cannabis is naturalized in Florida, but finding naturalized populations of cannabis in Florida may be challenging (Wunderlin et al. 2023; Franck, UF Herbarium, personal communication 2023). The weed risk assessment by UF/IFAS indicates a high risk of invasion into natural areas; this could be facilitated by escape from cultivation (UF/IFAS 2018). Caldazilla et al. (unpublished data 2023) found that it needs recently tilled (disturbed) soil to seed itself in the Krome gravelly loam (rockdale)

soil of south Florida. Hence, cannabis may be encountered growing uncultivated in Florida, but it may be limited to tilled areas.

Many governments have ruled cannabis a prohibited plant. However, recent changes in laws have established legal pathways for possession and cultivation in some places. In the United States, hemp is distinguished from marijuana by the content of its delta-9-tetrahydrocannabinol (THC). Hemp does not exceed 0.3% THC, while marijuana is legally 0.3% THC or higher. This legal definition requires a lab test to measure the THC level once a plant is identified as cannabis. This publication describes how to botanically identify cannabis and provides tips to distinguish it from other plants.

Because hemp and marijuana are legally distinct and variably regulated, growers, land managers, and the public should know how to distinguish cannabis from other plants. Below are details used by botanists to characterize *Cannabis sativa* (Wunderlin et al. 2023; Kew Royal Botanic Gardens 2023; Verdcourt 1975).

Growth habit: Herbaceous or suffrutescent (semi-woody) upright herb with mature heights 0.3–3 m; most plant parts are pubescent; varieties grown for different uses often vary greatly in size, with seed and flower varieties typically shorter than fiber varieties.

Leaves: Alternate or opposite, palmately compound; 5–18 cm long × 3–18 cm wide; petioles 3–8 cm.

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Leaflets: Usually 3–7 leaflets but up to 11; each 3–18 cm long × 0.3–3 cm wide, sessile, narrowly lanceolate, elliptical, or linear with long-tapering tips and bases; margins coarsely toothed (or serrated) with prominent pinnate veins and midribs.

Inflorescence: Imperfect (male or female), plants monoecious or dioecious.

Male flowers: In loose panicles to 18 cm long; whitish to yellow-green, with the sepals oblong-elliptic and 2.8–4 mm × 1–1.6 mm.

Female flowers: Compared with males, female inflorescences are shorter, more compact, and fewer-flowered; a small leaflike bracteole 2–9 mm long encloses each flower or fruit.

Fruit: Achene; a single dry seed (2.5–5 mm × 2–3.5 mm) covered with a thin papery wall (the leaflike bracteole).

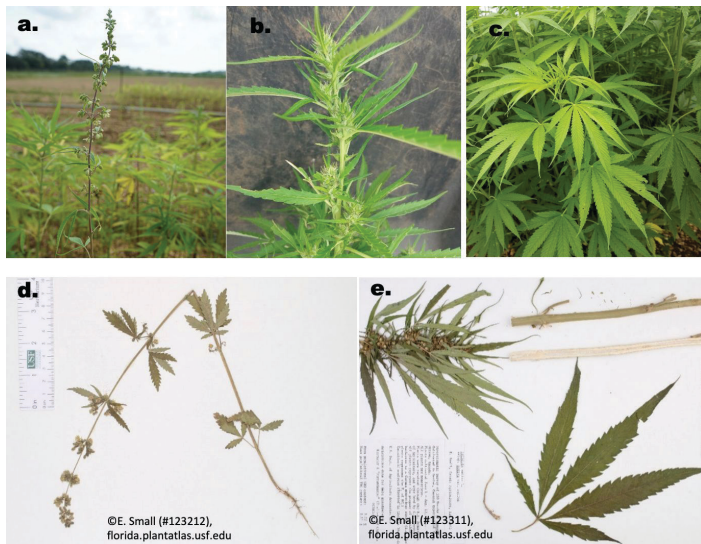


Figure 1. *Cannabis sativa* L. live plants with: a.) male flowers; b.) female flowers; and c.) many leaflets. Herbarium specimens with d.) male flowers and e.) female flowers and fruit.

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Similarities and Differences of Cannabis Look-Alikes, Including Habit, Leaflets, and Flowers

Figures 2–5 are descriptions of plants with many botanical similarities to cannabis. Some features may render them difficult to distinguish from cannabis, such as having serrated, palmately compound leaves. However, under careful scrutiny, differences do appear between cannabis and plant species with similar growth habits, leaf shapes, and flowers.

Further Reading

An effective technique for identifying cannabis and its look-alikes involves using botanical keys to first determine the plant species and then comparing it with online herbarium specimens. A guide on how to use a botanical key is Ask IFAS publication ENH1249, “How to Use a Dichotomous Key: A Tutorial Featuring 10 Common Shade Trees of the Tampa Bay Area” (Koeser et al. 2018). *Guide to the Vascular Plants of Florida* (Wunderlin and Hansen 2011) is a book with keys for identifying cannabis and all other plant species that grow without cultivation in Florida, including many of its look-alikes, and an excellent glossary of botanical terms. Online herbarium specimens can be viewed at the [Atlas of Florida Plants](#) (Wunderlin et al. 2023) and the [Florida Museum Herbarium Collection](#) (Franck et al. 2023). The former website has only plant species established in Florida, while the latter website also includes species known only from cultivation, such as *Hibiscus sabdariffa*. Plant specimens can also be submitted to professional botanists for identification using instructions given by the UF/IFAS Plant Identification and Information Service; the form is available at <https://edis.ifas.ufl.edu/publication/sr024> (Williams and Frank 2021). Evaluations of invasiveness of non-native plants in Florida’s natural areas may be found at <https://assessment.ifas.ufl.edu/assessments/> (UF/IFAS 2023). Based on this invasiveness evaluation, UF/IFAS faculty and staff do not recommend plant species with high invasive potential, including hemp.

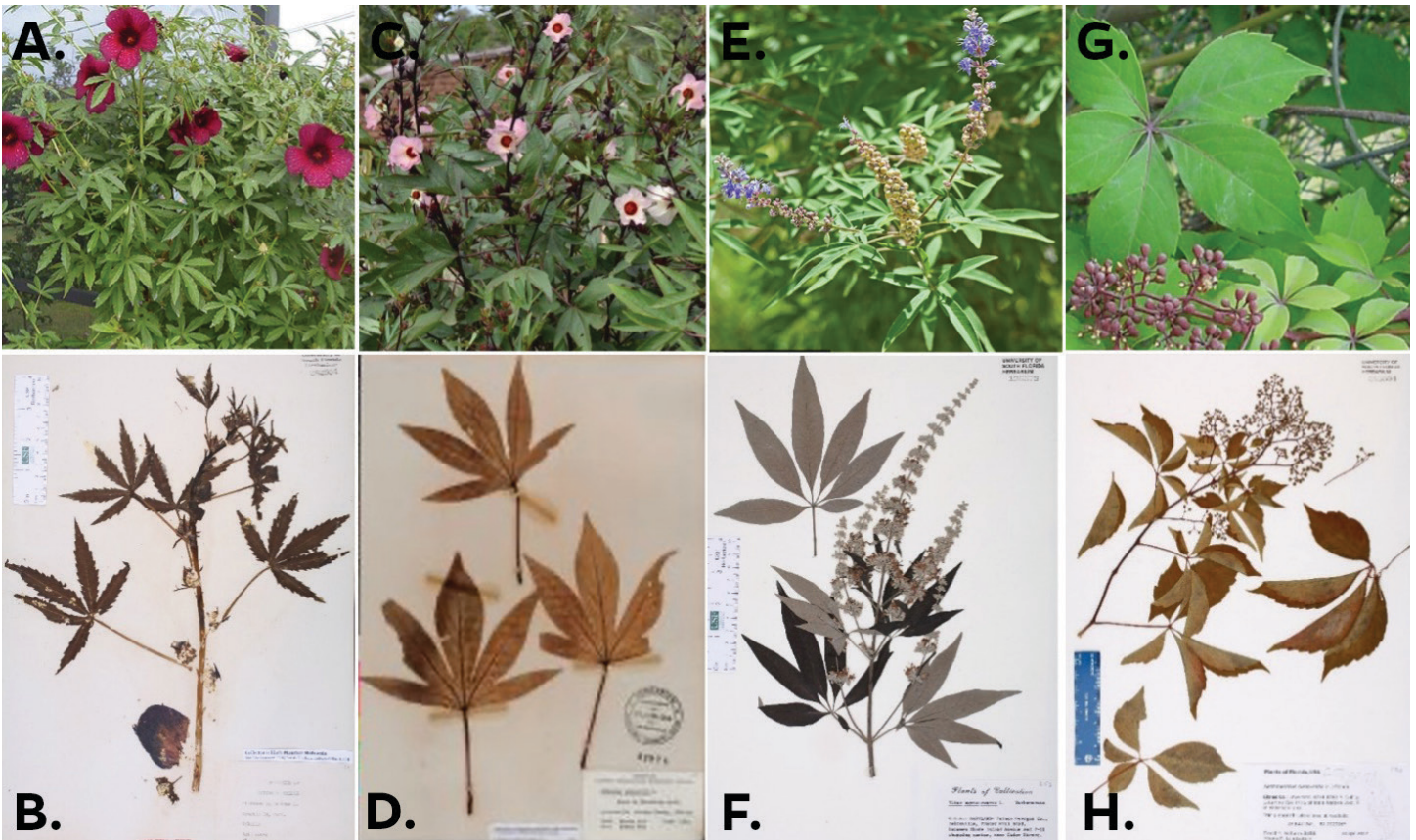


Figure 2. A.) *Hibiscus cannabinus*. B.) *Hibiscus cannabinus* (Herbarium specimen). C.) *Hibiscus sabdariffa*. D.) *Hibiscus sabdariffa* (Herbarium specimen). E.) *Vitex agnus-castus*. F.) *Vitex agnus-castus* (Herbarium specimen). G.) *Parthenocissus quinquefolia*. H.) *Parthenocissus quinquefolia* (Herbarium specimen).

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<p>Kenaf <i>Hibiscus cannabinus</i> L.</p> <p>Similarities: Upright habit Herbaceous/semi-woody Leaves deeply 5-lobed with each lobe narrow and serrate</p> <p>Differences: Malvaceae family Leaf serrations irregular Flowers large and single</p>	<p>Roselle hibiscus <i>Hibiscus sabdariffa</i> L.</p> <p>Similarities: Upright habit Herbaceous/semi-woody Leaves 3–7 lobed</p> <p>Differences: Malvaceae family Leaves deeply lobed, not compound Leaf lobes broad Flowers large and single</p>	<p>Lilac chastetree <i>Vitex agnus-castus</i> L.</p> <p>Similarities: Upright habit Leaves 5-foliolate Narrow leaflets Small flowers in clusters</p> <p>Differences: Lamiaceae family Woody shrub or small tree Leaflets non-serrate, lighter below than above Flowers blue, tubular</p>	<p>Virginia creeper <i>Parthenocissus quinquefolia</i> (L.) Planch.</p> <p>Similarities: Leaves 5-foliolate Leaflets serrate Small flowers</p> <p>Differences: Vitaceae family Woody vines Leaflets broadly elliptical Fruits fleshy</p>
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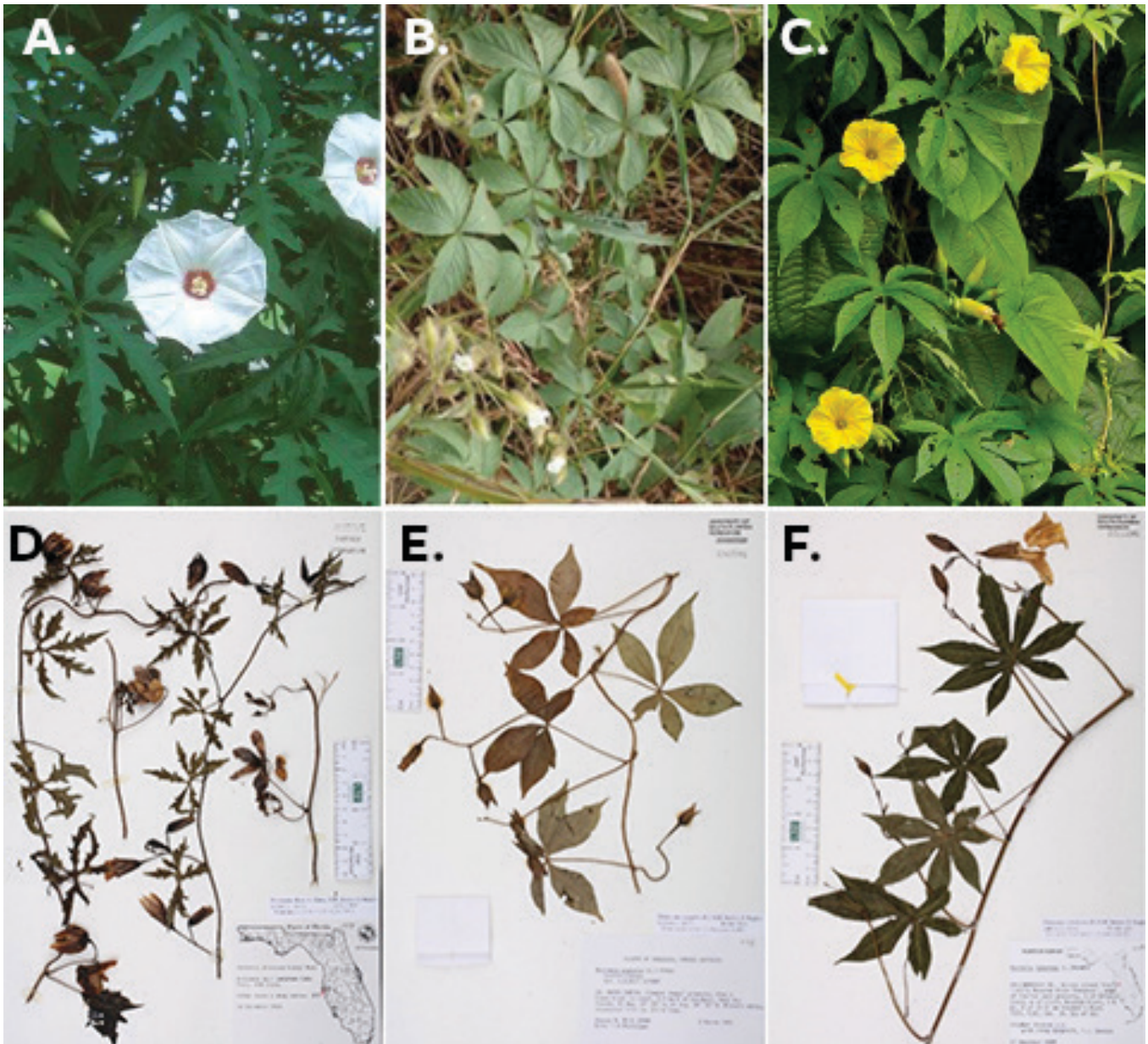


Figure 3. A.) *Distimake dissectus*. B.) *Distimake aegyptius*. C.) *Distimake tuberosus*. D.) *Distimake dissectus* (Herbarium specimen). E.) *Distimake aegyptius* (Herbarium specimen). F.) *Distimake tuberosus* (Herbarium specimen).
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<p>Noyau vine <i>Distimake dissectus</i> (Jacq.) A.R. Simões & Staples Similarities: Herbaceous Leaves 5–7 lobed Differences: Convolvulaceae family Vine Leaves lobed, not compound Leaf lobe edges dissected Flowers large and single</p>	<p>Hairy woodrose <i>Distimake aegyptius</i> (L.) A.R. Simões & Staples Similarities: Herbaceous Leaves 5-foliolate Differences: Convolvulaceae family Vine Leaflets broad, non-serrate Flowers large and single</p>	<p>Yellow morning-glory <i>Distimake tuberosus</i> (L.) A.R. Simões & Staples Similarities: Herbaceous Leaves 5–7 lobed Differences: Convolvulaceae family Vine Leaves lobed, not compound Flowers large and single</p>
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Figure 4. A.) *Distimake cissoides*. B.) *Distimake quinquefolius*. C.) *Distimake cissoides* (Herbarium specimen). D.) *Distimake quinquefolius* (Herbarium specimen).
 Credits: A.) © Patricia Howell, plantatlas. B.) Rafaël Govaerts, Kew Royal Botanic Gardens. C.) © N. T. Silva, C. Rosário, plantatlas. D.) © K. A. Bradley, plantatlas

<p>Roadside woodrose <i>Distimake cissoides</i> (Lam.) A.R. Simões & Staples</p> <p>Similarities: Herbaceous Leaves 5-foliolate, leaflets serrate</p> <p>Differences: Convolvulaceae family Vines Leaflets broader at middle Flowers large and single</p>	<p>Rock rosemary <i>Distimake quinquefolius</i> (L.) A.R. Simões & Staples</p> <p>Similarities: Herbaceous Leaves 5-foliolate Leaflets narrow, serrate</p> <p>Differences: Convolvulaceae family Vines Leaves often small Flowers large and single</p>
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Figure 5. A.) *Ipomoea cairica*. B.) *Ipomoea triloba*. C.) *Ipomoea cairica* (Herbarium specimen). D.) *Ipomoea triloba* (Herbarium specimen). Credits: A.) © Betty Wargo, plantatlas. B.) © Betty Wargo, plantatlas. C.) © R. Chicone, R. Wunderlich, plantatlas. D.) © R. P. Wunderlin, J. Beckner, A. Partridge, plantatlas.

Mile-a-minute vine

Ipomoea cairica (L.) Sweet

Similarities:

Herbaceous to semi-woody
Leaves 5-foliolate

Differences:

Convolvulaceae family
Vine
Leaflets non-serrate
Leaflets broader in middle
Flowers large and single

Littlebell

Ipomoea triloba L.

Similarities:

Herbaceous
Leaves 3–5 lobed

Differences:

Convolvulaceae family
Vine
Leaves small with variably shaped lobes
Flowers larger

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