

Characterization and Identification of *Ipomoea* genus in the Greater Kediri Area, Indonesia

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Abstract

This study aims to characterize and identify the genus of *Ipomoea* in the Greater Kediri area. The research was conducted in the Greater Kediri area which includes Kediri Regency and City, Nganjuk Regency, Blitar Regency and City, Tulungagung Regency, and Trenggalek Regency of East Java from January to June 2024 in an explorative descriptive manner. Sampling was done by snowball and purposive sampling. The observed characters include the morphological structure of roots, stems, leaves, flowers, fruits, and seeds. Plant identification was carried out referring to the *Ipomoea* genus Identification Key. The tools and materials used were ruler, razor/cutter, camera, stereo microscope, stationery, and plants of *Ipomoea* genus that were found. *Ipomoea* genus found in Greater Kediri area were 12 types, namely: *Ipomoea batatas*, *Ipomoea carnea*, *Ipomoea aquatica*, *Ipomoea reptans*, *Ipomoea triloba*, *Ipomoea lacunosa*, *Ipomoea obscura*, *Ipomoea quamoclit*, *Ipomoea quinquefolia*, *Ipomoea pes-tigridis*, *Ipomoea pes-caprae* and *Ipomoea tricolor*. Because of the wide area of research, this research is continued and if new species are found, they will be collected and added to the database of *Ipomoea* genus members in the Greater Kediri area.

Keywords: *Ipomoea*, *characterization*, *identification*, *Greater Kediri*.

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Introduction

The genus *Ipomoea*, a member of the family Convolvulaceae, comprises approximately 800 species worldwide (Wood et al., 2020). Plants of the *Ipomoea* genus are utilized for various purposes such as ornamentals (Lee et al., 2021), food sources (Syarifaini, 2017) medicinal materials (Meira et al., 2012), and phytoremediation (Khairuddin et al., 2017; Nofiyanto et al., 2019).

The greater Kediri area is situated in East Java and includes Kediri Regency and City, Nganjuk Regency, Blitar Regency and City, Tulungagung Regency, and Trenggalek Regency. Its tropical location and diverse range from lowlands to highlands contribute to its rich diversity in flora and fauna.

The identification and characterization of plants in this region serve as a significant focus for the Biology Education Department of the University of Nusantara PGRI Kediri. A database of various plant species found in this area has been compiled, including rare plants (Masrofian et al., 2022; Annafinurika et al., 2022), medicinal plants (Huda et al., 2022; Fadhillah et al., 2022), species from the Asteraceae family (Sari et al., 2022), genus of Hibiscus (Sari et al., 2024), ferns (Seno et al., 2014; Imami, 2012), mosses (Mundir et al., 2013; Indriani et al., 2014), and mangoes (Oktavianto et al., 2015).

To further expand this existing database of plant species, this study conducted an inventory and identification of *Ipomoea* genus species in the greater Kediri area.

Materials and Methods

This research was conducted in the Greater Kediri area, encompassing Kediri Regency and City, Nganjuk Regency, Blitar Regency and City, Tulungagung Regency, and Trenggalek Regency of East Java from January to June 2024 in an exploratory descriptive manner, employing snowball sampling and purposive sampling. The observed characteristics included root, stem, leaf, flower, fruit, and seed organs. Plant identification was conducted using the *Ipomoea* genus identification key (Wood et al. (2020)). The tools and materials utilized were a ruler, razor/cutter, camera, stereomicroscope, stationery, and specimens of *Ipomoea* genus plants found in the area.

Results

There are 12 species of the *Ipomoea* genus found in the greater Kediri area: *Ipomoea batatas*, *Ipomoea carnea*, *Ipomoea aquatica*, *Ipomoea reptans*, *Ipomoea triloba*, *Ipomoea lacunosa*, *Ipomoea obscura*, *Ipomoea quamoclit*, *Ipomoea quinquefolia*, *Ipomoea pes-tigridis*, *Ipomoea pes-caprae*, and *Ipomoea tricolor* (Figure 1).



Figure 1. The Morphological and Structural Characteristics of the Leaves and Flowers of the *Ipomoea* genus, as Observed in the Greater Kediri Area. A-L, Respectively, are: *I. carnea*, *I. aquatica*, *I. reptans*, *I. triloba*, *I. lacunosa*, *I. obscura*, *I. quamoclit*, *I. quinquefolia*, *I. pes-tigridis*, *I. pes-caprae* dan *I. tricolor*



Discussion

Ipomoea batatas

I. batatas (Figure 1. A) is a native species of the genus *Ipomoea* known for its creeping growth habit and extensive species-level diversity. By 2018, 183 accessions had been collected in Indonesia (Rahajeng, 2018), with ongoing increases due to hybridization. This high genetic diversity in sweet potatoes stems from traits like self-incompatibility and polyploid chromosomes (Tsuchiya, 2014; Baafi et al., 2016). Each cross yields variable offspring, potentially leading to new accessions (Sulistiono et al., 2023). The tubers of *I. batatas* serve as a vital food source due to their richness in starch and beta-carotene (Ameny & Wilson, 1997), anthocyanins (Islam et al., 2002), vitamins, and minerals (Alam et al., 2020).

The taproot system comprises tubers that store food reserves, formed by primary roots and adventitious roots emerging from stem nodes. The color of the tuber skin varies across accessions (white, red, purple). The stem is moist, green or purple, round in shape, 0.5 - 1 cm in diameter, growing as creepers with sympodial branching. Adventitious roots emerge from nodes that come into contact with the ground, with some developing into tubers.

The single leaf ranges from 5.2 to 10.4 cm in length and 4 to 10.2 cm in width, with a 2/5 phyllotaxis. Leaf shapes include orbicular, cordate, or triangular, depending on the accession, with palmate venation. Leaf margins vary (entire, lobed, cleft, or divided), and apexes may be acuminate, obtuse, or rounded, depending on the accession.

The compound flower is of the cymose type, with 3 - 7 solitary flowers emerging from leaf axils. Each flower is hermaphroditic and actinomorphic symmetrically. The calyx is green, with 5 sepals, polysepalous, and imbricately quincuncial. The corolla is lilac-white, trumpet-shaped, 4 - 5 cm long and 3 - 4.5 cm wide, composed of 5 gamopetalous petals, dextrortum-contortus. There are 5 white stamens attached to the receptacle, episepalous, with two stamens equal in length (2.1 cm) and three shorter ones (1.5 cm). The pistil sits on the receptacle with a superus ovary composed of 4 syncarpous carpels. The white style measures about 2.1 cm in length.

The dried single true fruits (tetrachenium) are green when young and turn black-brown when dry. They are capsule-shaped, approximately 1.6 cm long and 0.9 cm in diameter. The ripe seeds are blackish-brown, hairy, rounded triangular, about 0.6 cm long and 0.4 cm wide.

Ipomoea carnea

I. carnea (Figure 1. B) is a native species of the genus *Ipomoea* found extensively throughout Greater Kediri, particularly at the edges of rice paddies, wet swamps, riverbanks, and marshes. This plant is highly valued for its medicinal properties, serving as a bio-stimulant and anti-cancer (Singla et al., 2021), attributed to its rich alkaloid content (Ambiga et al., 2007).

The root system consists of a taproot that is brownish-white in color. Adventitious roots emerge from nodes either attached to or buried in the soil. The stem is woody, green in youth, and turning brownish-white as it matures, round in shape, 1-2 cm in diameter, erect, with sympodial branches.

The single leaf measures approximately 15.6 cm in length and 9.3 cm in width, with a 3/8 phyllotaxis. The leaf is triangular in shape, acuminate at the apex, entire at the margin, lobed at the base, and pinnately veined.

The compound flower is of the cymose type, comprising 6-9 single flowers emerging from leaf axils. Each single flower is hermaphroditic and actinomorphic symmetrically. The calyx is green, composed of 5 sepals, polysepalous, and imbricately quincuncial. The corolla is purplish-white, trumpet-shaped, 8 - 10 cm long, and 6 - 8 cm wide, consisting of 5 gamopetalous petals, dexstrorsum contortus. There are 5 white stamens positioned in the receptacle, episepalous, with two stamens equal in length (2.9 cm) and



the other three shorter (2 cm). The pistil sits on the receptacle with a superus ovary composed of 4 syncarpous carpels. The white style is approximately 3.1 cm long, and the stigma is white and about 2.9 cm long.

The dried single true fruits (tetrachenium) are green when young and turn blackish-brown when dry. They are capsule-shaped, about 1.6 cm long and 0.9 cm in diameter. The ripe seeds are blackish-brown, hairy, rounded triangular in shape, approximately 0.6 cm long.

Ipomoea aquatica

I. aquatica (Figure 1. C) is a native species of the genus *Ipomoea*, known as a creeping plant that thrives in aquatic environments such as rice fields, riverbanks, and swamps. It is cultivated and consumed as a vegetable and is also utilized for phytoremediation (Chanu, L. B., & Gupta, 2016; Hanafiah et al., 2020).

The root system is taprooted, and brownish-white in color. Adventitious roots develop from nodes in water or soil. The stem is herbaceous, hollow, and air-filled inside. It ranges in color from green to light brown, round in shape, with a diameter of 0.5 - 1 cm, creeping with sympodial branching.

The single leaf measures about 8.4 cm in length and 3.2 cm in width, with a 2/5 phyllotaxis. The leaf shape is lanceolate, acuminate at the apex, entire at the margin, lobed at the base, and pinnately veined.

The compound flower is of the cymose type, consisting of 1 to 3 solitary flowers emerging from the leaf axils. Each single flower is hermaphroditic and actinomorphic symmetrically. The calyx is green, composed of 5 sepals, polysepalous, and imbricately quincuncial. The corolla is purplish-white, trumpet-shaped, 4 - 5 cm long, 3 - 4.5 cm wide, and comprises 5 gamopetalous petals, dextrorsum contortus. There are 5 white stamens situated in the receptacle, episepalous, with two stamens equal in length (1.5 cm) and the other three shorter (0.9 cm). The pistil sits on the receptacle with a superus ovary composed of 4 syncarpous carpels. The white style is approximately 1.5 cm long.

The dried single true fruits (tetrachenium) are green when young and turn black-brown when dried. They are capsule-shaped, about 0.9 cm long and 0.6 cm in diameter. The ripe seeds are blackish-brown, rounded triangular in shape, approximately 0.4 cm long and 0.3 cm wide.

Ipomoea reptans

I. reptans (Figure 1.D) is a native member of the *Ipomoea* genus, commonly found growing upright in wet areas, riverbanks, and marshes. This species is valued for its antidiabetic, antioxidant (Saha et al., 2008), and antimicrobial properties (Gad et al., 2015), and is also cultivated and consumed as a vegetable.

The root system is tap-rooted and brownish-white in color. Adventitious roots emerge from nodes on the stem, providing additional anchorage in the soil. The stem is herbaceous, hollow (ex-pith), filled with water and air, green in color, round in shape, and typically measures 0.5 - 1 cm in diameter. It grows upright with sympodial branching.

The single leaf is approximately 15.6 cm long and 1.4 cm wide, with a 2/5 phyllotaxis. It is lanceolate in shape, acuminate at the apex, with an entire margin, lobed at the base, and exhibits penninervous venation.

The compound flower is of the cymose type, consisting of 3 to 7 single flowers emerging from the leaf axils. These flowers are hermaphroditic and actinomorphic symmetrically. The sepals are green, numbering 5, polysepalous, and imbricate quincuncially. The corolla is white, trumpet-shaped, measuring 7.6 cm in length and 5.6 cm in width, composed of 5 gamopetalous petals that are, *dextrorsum contortus*. There are 5 white stamens attached to the receptacle, with two stamens measuring 2.6 cm in length and three shorter ones at 1.9 cm. The pistil is situated superiorly on the receptacle, composed of 4 syncarpous carpels. The pistil is white and approximately 2.6 cm long.



The dried true fruits (tetrachenium) are green when young, turning black-brown when dried. They are capsule-shaped, about 1.1 cm long and 0.7 cm in diameter. Ripe seeds are blackish brown, hairy, rounded triangular in shape, measuring about 0.5 cm in length and 0.4 cm wide.

Ipomoea triloba

I. triloba (Figure 1. E) is a native species of the genus *Ipomoea* that creeps in dry and open areas such as rice-field edges, gardens, or roadsides, where it is often considered weedy (Alamsyah, 2020). This plant produces antimicrobial compounds, particularly effective against diarrhea-causing microbes (Favour, et al., 2022).

The taproot system is brownish-white in color, without adventitious roots. The stem is herbaceous, green to light brown, covered with numerous trichomes, round in shape, 0.3 - 0.5 cm in diameter, and grows in twisted vines with sympodial branching.

The single leaf is hairy, approximately 3.8 cm long and 3.7 cm wide, with a 2/5 phyllotaxis. The leaf shape is triangular, acuminate at the apex, marginally notched with 3 lobes, lobed at the base, and palmately veined.

The compound flower is of the cymose type, consisting of 6 - 9 single flowers that emerge from the leaf axils. Each single flower is hermaphroditic and actinomorphic symmetrically. The calyx is green, composed of 5 sepals, polysepalous, and imbricately quincuncial. The corolla is whitish-purple, trumpet-shaped, approximately 3.5 cm long and 2.5 cm wide, composed of 5 gamopetalous petals, dextrorsum contortus. There are 5 white stamens situated in the receptacle, episepalous, with two stamens equal in length (1.5 cm) and the remaining three shorter, approximately 0.9 cm long. The pistil sits on the receptacle with a superus ovary composed of 4 syncarpous carpels. The stigma is white and about 1.5 cm in length.

The dried single true fruits (tetrachenium type) are green when young and turn blackish-brown when dried. They are capsule-shaped, approximately 0.8 cm long and 0.6 cm in diameter. The ripe seeds are blackish-brown, hairy, rounded triangular in shape, approximately 0.5 cm long and 0.3 cm wide.

Ipomoea lacunosa

I. lacunosa (Figure 1. F) is a native species of the genus *Ipomoea* that grows as a creeper in dry, open places such as rice field margins, gardens, and roadsides. This plant is often considered a weed and proves difficult to control (Koger et al., 2003; Oliveira & Norsworthy, 2006).

The root system consists of a taproot, brownish-white in color. Unlike *I. triloba*, there are no advancing roots produced from each node on the stem. The stem is herbaceous, ranging from green to light brown, round in shape, with a diameter of 0.3 - 0.5 cm, and grows twisted to the right with sympodial branching.

The single leaf measures approximately 7.8 cm in length and 7.4 cm in width, with a 2/5 phyllotaxis. The leaf is triangular in shape, acuminate at the apex, marginally notched with 3 lobes, lobed at the base, and palmately veined.

The compound flower is of the cymose type, consisting of 6-9 single flowers emerging from the leaf axils. Each single flower is hermaphroditic, actinomorphic symmetrically. The calyx is green, composed of 5 sepals, polysepalous, and imbricately quincuncial. The corolla is whitish-purple, trumpet-shaped, 2.1 cm long, 1.6 cm wide, and comprises 5 gamopetalous petals, dextrorsum contortus. There are 5 white stamens seated in the receptacle, episepalous, with two stamens of equal length (1.5 cm) and the remaining three shorter at 1.2 cm. The pistil is situated on the receptacle with a superus ovary composed of 4 syncarpous carpels. The pistil is white and approximately 1.5 cm long.



The dried single true fruits (tetrachenium) are green when young and turn blackish-brown when dried. They are capsule-shaped, about 0.7 cm long and 0.5 cm in diameter. The ripe seeds are blackish-brown, hairy, rounded triangular in shape, approximately 0.3 cm long and 0.2 cm wide.

Ipomoea obscura

I. obscura (Figure 1. G) is a native species of the genus *Ipomoea* that grows as a creeper in dry and open places such as rice fields, gardens, and roadsides. Despite often being considered a weed, this plant produces secondary metabolites that function as antioxidants (Sasikala et al., 2020), as well as exhibiting anti-cancer and anti-hepatitis properties (Mungole et al., 2010).

The root system is taproot, brownish-white in color. Similar to *I. lacunosa*, no adventitious roots emerge from each node of the stem. The stem is herbaceous, ranging from green to light brown, round in shape, with a diameter of 0.1 - 0.3 cm, and grows twisted to the right with sympodial branching.

The single leaf is approximately 5.2 cm long and 5.6 cm wide, with a 2/5 phyllotaxis. The leaf shape is cordate, acuminate at the apex, entire at the margin, lobed at the base, and penninervous in venation.

The compound flower is of the cymose type, consisting of 2 - 5 single flowers that emerge from the leaf axils. Each single flower is hermaphroditic, actinomorphic symmetrically. The calyx is green, composed of 5 sepals, polysepalous, and imbricately quincuncial. The corolla is yellowish-white, trumpet-shaped, 3.7 cm long, 3.4 cm wide, and comprises 5 gamopetalous petals, dextrorsum contortus. There are 5 white stamens seated in the receptacle, episepalous, with two stamens of equal length (3.5 cm) and the remaining three shorter at 2.8 cm. The pistil is positioned on the receptacle with a superus ovary composed of 4 syncarpous carpels. The style is white and approximately 3.5 cm long.

The dried single true fruits (tetrachenium) are green when young and turn blackish-brown when dry. They are capsule-shaped, about 0.6 cm long and 0.5 cm in diameter. The ripe seeds are black-brown, hairy, rounded triangular in shape, approximately 0.3 cm long and 0.2 cm wide.

Ipomoea quamoclit

I. quamoclit (Figure 1. H) is a native of the genus *Ipomoea* that grows as a creeper in open and dry places. This plant has long been used as traditional medicine in various countries (Kumar et al., 2015), due to its production of secondary metabolites that act as antioxidants, antimicrobial and anticancer agents (Renuka & Ravishankar, 2014), as well as antidiabetic agents (Reddy & Kumar, 2015).

The root system is taproot, brownish-white in color. Similar to *I. triloba* and *I. obscura*, its non-advancing roots emerge from each node on the stem. The stem is herbaceous, ranging from green to light brown, round in shape, 0.3 - 0.5 cm in diameter, and grows twisted to the right with sympodial branching.

A single leaf measures about 8.4 cm in length and 4.2 cm in width with a 2/5 phyllotaxis. The leaf is oval in shape, with a rounded apex, marginally lobed, entire at the base, and penninervous in venation.

The compound flower is of the cymose type, consisting of 6-9 single flowers emerging from leaf axils. Each single flower is hermaphroditic, actinomorphic symmetrically. The calyx is green, composed of 5 sepals, polysepalous, and imbricately quincuncial. The corolla is white-violet, trumpet-shaped, 2.1 cm long, 1.6 cm wide, and comprises 5 gamopetalous petals, dextrorsum contortus. There are 5 white stamens seated in the receptacle, episepalous, with two stamens equal in length (1.5 cm) and the remaining three shorter at 1.2 cm. The pistil is situated on the receptacle with a superus ovary composed of 4 syncarpous carpels. The pistil is white and approximately 1.5 cm long.

The dried single true fruits (tetrachenium) are green when young and turn blackish-brown when dry. They are capsule-shaped, approximately 0.8 cm long and 0.7 cm in diameter. The ripe seeds are black-brown, hairy, rounded triangular in shape, and about 0.5 cm long.



Ipomoea quinquefolia

I. quinquefolia (Figure 1. I) is a perennial plant that typically grows in moist to semi-dry environments, often found creeping along river banks and in wet swamps. Its taproot system is brownish-white in color. The herbaceous stem ranges in color from green to light brown and is covered with numerous trichomes. It has a rounded shape with a diameter of 0.2 to 0.4 cm and grows in a right-twisted pattern with sympodial branching.

The leaves are solitary, approximately 6.4 cm long and 6.5 cm wide, arranged in a 2/5 phyllotaxis. They are orbicular in shape with rounded apices, lobed margins, entire bases, and palmate venation. Each lobe has a serrated margin.

The compound flowers are of the cymose type, consisting of 3 to 7 individual flowers emerging from the leaf axils. These hermaphroditic flowers exhibit actinomorphic symmetry. The green calyx consists of 5 sepals that are separate from each other and overlap in a quincuncial arrangement (imbricata quincuncialis). The corolla is whitish-purple, trumpet-shaped, measuring about 2.1 cm long and 1.6 cm wide. It is composed of 5 fused petals (gamopetalous), twisted in a clockwise or counterclockwise direction (dextrorse-contort).

There are 5 white stamens situated on the receptacle, with 2 stamens measuring approximately 1.5 cm in length and the remaining 3 shorter at 1.2 cm. The pistil is situated on the receptacle with a superior ovary composed of 4 syncarpous carpels, and approximately 1.5 cm long.

The mature fruits are dry, true fruits of the tetrachenium type. Initially green, they turn blackish-brown as they dry out. The fruits are capsule-shaped, about 0.9 cm long and 0.8 cm in diameter. The ripe seeds are black-brown, hairy, and roughly triangular, measuring about 0.4 cm long and 0.3 cm wide.

Ipomoea pes-tigridis

I. pes-tigridis (Figure 1) is an annual plant that typically creeps in open wet-dry environments such as riverbanks, swamps, and edges of rice fields. It holds significance in traditional medicine (Pratap et al., 2011), due to its production of secondary metabolites known for their analgesic, and neuropharmacological (Chowdhury et al., 2014), and antioxidant (Begum et al., 2015) properties.

The taproot of *I. pes-tigridis* is brown-white in color. Its herbaceous stem ranges from green to light brown and is densely covered with trichomes. The stem is round, with a diameter of 0.3 to 0.5 cm, and grows in a right-twisted vine pattern with sympodial branching.

Each leaf is singular, displaying a 2/5 phyllotaxis pattern, and is approximately 6.6 cm long and 6.7 cm wide. The leaves are rounded in shape with a rounded tip, have 5 to 7 lobes along the margin, a flat base, and show palminervis venation. Both upper and lower leaf surfaces are densely hairy.

The compound flowers are of the cymose type, comprising 5 flowers without pedicels that cluster on the receptacle, resembling a corymbus-like structure. These compound flowers are surrounded by 5 green bracts. Each flower is hermaphroditic, actinomorphic symmetry, stalkless, and protected by a single green bracteole. The green calyx is hairy and consists of 5 sepals that are separate from each other and arranged in an overlapping quincuncial pattern (imbricata quincuncialis).

The corolla is white, trumpet-shaped, measuring 5.4 cm long and 4.6 cm wide. It is composed of 5 fused petals (gamopetalous) that are twisted either clockwise or counterclockwise (dextrorsum-contortus). There are 5 white stamens attached to the receptacle, with 2 stamens measuring approximately 3.1 cm in length and the remaining 3 shorter at 2.6 cm. The pistil is situated on the receptacle with a superior ovary composed of 4 syncarpous carpels. The white style is about 3.1 cm long.



The mature fruits are dry, true fruits of the tetrachenium type. Initially hairy and green, they turn blackish-brown upon drying. The fruits are capsule-shaped, about 0.9 cm long and 0.8 cm in diameter. Ripe seeds are blackish-brown, hairy, and roughly triangular, measuring approximately 0.3 cm long and 0.2 cm wide.

Ipomoea pes-caprae

I. pes-caprae (Figure 1. K) is a perennial plant that typically grows as a creeper in moist open areas such as marsh edges and beaches. It is known for producing secondary metabolites with antioxidant (Kumar et al., 2015), and anti-inflammatory properties (Pongprayoon et al., 1991).

The taproot system of *I. pes-caprae* is brownish-white in color. Its herbaceous stem ranges from green to light brown, is round in shape, and has a diameter of 0.3 to 0.5 cm. The stem creeps with sympodial branching.

Each leaf is singular, with a 2/5 phyllotaxis pattern, approximately 6.7 cm long and 6.6 cm wide. The leaves are inverted heart-shaped, with a lobed apex, entire margins, flat bases, and penninervous venation.

The compound flowers are of the cymose type, typically consisting of 5 to 7 individual flowers emerging from leaf axils. Each flower is hermaphroditic and exhibits actinomorphic symmetry. The green calyx consists of 5 sepals that are separate from each other and overlap in a quincuncial arrangement (imbricata quincuncialis). The corolla is purple, trumpet-shaped, measuring 5.8 cm long and 4.6 cm wide. It is composed of 5 fused petals (gamopetalous) that are twisted in a clockwise or counterclockwise direction (dextrorsum-contortus). There are 5 white stamens attached to the receptacle, with 2 stamens measuring approximately 3.5 cm in length and the remaining 3 shorter at 2.8 cm. The pistil is situated on the receptacle with a superus ovary composed of 4 syncarpous carpels. The white style is about 3.5 cm long.

The mature fruits are dry, true fruits of the tetrachenium type. Initially green and spherical, they turn blackish-brown upon drying. The fruits measure about 0.9 cm in length and 0.8 cm in diameter. Ripe seeds are blackish-brown, hairy, roughly triangular, and approximately 0.5 cm long and 0.3 cm wide.

Ipomoea tricolor

I. tricolor (Figure 1. L) is a vine plant that typically grows in open, humid-dry locations such as moors and roadsides, and is also cultivated as an ornamental plant. This species is known for producing secondary metabolites with antimicrobial, antiviral, and psychotropic properties (Alamsyah, 2020).

It has a taproot system that is brownish-white. The herbaceous stem is green to light brown, round in shape, 0.2 - 0.4 cm in diameter, twisted to the right and exhibits sympodial branching.

The individual leaf measures approximately 5.2 cm long and 5.6 cm wide, with a 2/5 phyllotaxis. The leaf shape is cordate, acuminate at the apex, with an entire margin, lobed at the base, and penninervous in venation.

The compound flower is of the cymose type, consisting of 5 to 7 single flowers emerging from leaf axils. These hermaphroditic flowers are actinomorphic symmetrically. The calyx is green, comprising 5 sepals that are polysepalous and imbricate quincuncially. The corolla displays a combination of light purple, dark purple, and blue colors, trumpet-shaped, measuring 5.1 cm in length and 4.2 cm in width, composed of 5 gamopetalous petals that are dextrorsum contortus. There are 5 white stamens attached to the receptacle, with two stamens measuring 3.5 cm in length and three shorter ones at 2.6 cm. The pistil is situated superiorly on the receptacle, composed of 4 syncarpous carpels. The white style is about 3.5 cm long.

The dried true fruits (tetrachenium) are green when young, turning blackish-brown when dry, capsule-shaped, about 0.8 cm long, and 0.7 cm in diameter. The ripe seeds are blackish-brown, rounded triangular in shape, and approximately 0.3 cm long.



Readers need to know what they have read and why it was significant. Remind the reader why this article was worth reading and publishing. This is where you describe the meaning of your results, especially in the context of what was already known about the subject. You can present general and specific conclusions, but take care not to summarize your article – that's what the abstract is for.

You should link this section back to the introduction, referring to your questions or hypotheses, and cover how the results relate to your expectations and cited sources. Do the results support or contradict existing theories? Are there any limitations? You can also suggest further experiments, uses and extensions.

Above all, the discussion should explain how your research has moved the body of scientific knowledge forward.

Conclusion

There are 12 species of the genus *Ipomoea* found in Greater Kediri, namely: *I. batatas*, *I. carnea*, *I. aquatica*, *I. reptans*, *I. triloba*, *Ipomoea lacunosa*, *I. obscura*, *I. quamoclit*, *I. quinquefolia*, *I. pes-tigridis*, *I. pes-caprae*, and *I. tricolor*. This research will continue, and any newly discovered species will be collected and added to the database of *Ipomoea* species in Greater Kediri.

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Conflict of Interests

No conflict of interest.

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