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Alien lianas in Tunisia: First reports for the Mediterranean area and North Africa with additional distributional data for the country

Abstract

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During botanical surveys undertaken from northern to southern Tunisian territory, mostly within the last two decades, new occurrences of alien vascular plants (lianas) were detected. These records include: *Campsis grandiflora*, *Lablab purpureus* subsp. *uncinatus* and *Tinospora cordifolia* new to the Mediterranean area; *Solandra maxima* new to the African inland and *Ipomoea pes-caprae* new to North Africa. In addition, new national distributional data for *Ipomoea batatas*, *Lablab purpureus* subsp. *purpureus* and *Momordica balsamina*, already known from Tunisia, are here reported. All taxa are considered casual or naturalized aliens where the horticultural trade remains the most likely pathway for their introduction. General macromorphological characteristics together with original photographs are provided. Actual distribution, ecological notes (habitat, phenology) as well as the degree of naturalization in Tunisia are presented.

Key words: Chorology, Floristics, new records, *Campsis*, *Lablab*, *Momordica*, *Solandra*, *Tinospora*.

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Introduction

The present contribution is part of an ongoing series that documents new records of introduced/non-native lianas (climbing/creeping vascular plant) of different genera, that have become casual, naturalized or invasive in Tunisia. Thus far, numerous records have been added to the Tunisian native/non-native flora via this series (El Mokni 2024) and related publications (El Mokni 2018a, 2018b, 2025; El Mokni & Iamónico 2024, 2025). In this report more climbing vines were collected mainly within the northern and central coastal area and the southern part of Tunisia (North Africa) among which some of them are hitherto unknown and stated as new records for the Mediterranean and the inland African continent. In addition, new distributional records of *Ipomoea batatas* (L.) Lam. (*Convolvulaceae*), *Lablab purpureus* (L.) Sweet subsp. *purpureus* (*Fabaceae*), *Momordica*

balsamina L. (*Cucurbitaceae*) hitherto, according to current knowledge and personnel field surveys, have a very limited distribution were found in the wild in new localities approving to enlarge the range of their distribution as naturalizing aliens in Tunisia.

Material and methods

Records of the present contribution are the result of extensive field surveys undertaken since many years together with analysis of relevant literature dealing with morphological features for *Campsis grandiflora* (see e.g. Wen & Jansen 1995; Zhang & Santisuk 1998; Oates & al. 2014), for *Tinospora cordifolia* (Willd.) Hook.f. & Thomson as we did not find neither flowers nor mature fruits during our fieldwork, fresh material was determined following mainly descriptions given by Forman (1981), Bhoopendra Mani & al. (2015); Sankara Rao & al. (2016); Kavane & al. (2021), Gupta & al. (2024b); and comparing it to the iconographies and photographs deposited mainly in the Digital Flora of Eastern Ghats (see e.g. Forman 1981; Sankara Rao & al. 2016), for *Ipomoea pes-caprae* (see e.g. Devall 1992; Pereda-Miranda & al. 2005; Brown & Frank 2020), for *Solandra maxima* (see e.g. Orchard 1994), for *Lablab purpureus* subsp. *uncinatus* Verdc. (see e.g. Adebisi & Bosch 2004; Sheahan, 2012; Heuzé & al. 2016; Vishnu & Radhamany 2020; Swamy 2023) and global distributive areas of different taxa (see e.g. St. John 1970; Barnardello & Hunziker 1987; Devall 1992; Zhang & Santisuk 1998; Devall & Thien 2005; Sarmiento & Boettler 2011; Bussmann & al. 2018; POWO 2026) or distribution at national level (see e.g. El Mokni 2018, 2024; El Mokni & Debruille 2021). Collected material is preserved in the personal collection of the third author (Herb. Ri. El Mokni) housed in the herbarium of the Faculty of Pharmacy of Monastir (Monastir University). The degree of naturalization is according to Pyšek & al. (2004). Reported taxa are presented alphabetically in three categories: new Mediterranean records, new N-African records and new national distributional records for lianas already known from Tunisia. Each entry includes the currently accepted name of the taxon with one or more synonyms. Authorities of plant names usually follow POWO (2026).

Results

New records for the Mediterranean Area

Campsis grandiflora (Thunb.) K.Schum. (*Bignoniaceae*)

≡ *Bignonia grandiflora* Thunb.; ≡ *Gelsemium grandiflorum* (Thunb.) Kuntze; ≡ *Tecoma grandiflora* (Thunb.) Loisel

Morphology – (Fig. 1 A-C). *Campsis grandiflora* is a deciduous climber up to 10 m high; *stems* glabrous; *leaves* imparipinnate, up to about 30 cm, with 7–9 ovate-lanceolate leaflets long up to 7.5 cm, with jagged margins, long-pointed, coarsely toothed, glabrous on both surfaces, leaf rachis 4–13 cm long, petiolules 5–10 mm; *flowers* in terminal, pendulous panicles of six or twelve, produced at the end of the current season's growth in August and later, *corolla* deep orange and red, widely trumpet-mouthed, narrowing to a

funnel-shaped tube; 5.0 to 8.0(–9.0) cm long and wide, with five broad, rounded to semi-rounded lobes, calyx 2.0–2.5 cm long, bell-shaped, with five slender lance-shaped lobes up to 1.5 cm long; *stamens* inserted at base of corolla tube, *filaments* linear, 2–2.5 cm, *anthers* divergent, yellow; *style* linear, ca. 3 cm; stigma compressed, 2-lobed; *fruits* (capsules) long up to 15 cm, containing many flat and winged seeds.

Global distribution, habitats and phenology – *Campsis grandiflora* is native to eastern and southeastern China and precisely to the provinces of Fujian, Guangdong, Guangxi, Hebei, Shandong and Shanxi (POWO 2026a). Due to its great ornamental value (more rarely as timber for construction or medicinally for promoting diuresis), it is often widely cultivated for its attractive, glowing flowers, within Mediterranean gardens (<https://www.gardenia.net/plant/campsis-grandiflora-chinese-trumpet-creeper>). The species can be found growing naturally on hillsides, within roadsides, and in rocky areas. Flowering-fruitlet periods are reported from May to August (see e.g. Zhang & Santisuk 1998; Bussmann & al. 2018).

Occurrence, habitat and phenology in Tunisia – The species was recorded mainly climbing with walls of deserted houses in Monastir city (CE Tunisia). Collected samples were in flowers and fruits during October.

Pathways of introduction and current naturalization status in Tunisia – The plant was introduced as ornamental for its magnificent tubular flowers. It reproduces by seeds, woody cuttings in summer, root cuttings in winter, air and ground layering. Following the terminology of Pyšek & al. (2004), is here firstly assessed as a casual alien to Tunisia, the African continent and the whole Mediterranean.

Specimens examined (new record) – TUNISIA. Monastir: Monastir-city, Khefacha, 1 October 2025, *El Mokni s.n.* (Herb. El Mokni!).

Notes – *Campsis grandiflora* can be easily distinguished from the better-known *C. radicans* (L.) Bureau and their hybrid *Campsis* × *tagliabuana* (Vis.) Rehd. [*C. radicans* × *C. grandiflora*] by the panicle-like inflorescence, the broader mouth of the corolla, glabrous leaves, and the much more deeply lobed calyx (see Wen & Jansen 1995; Oates & al., 2014; El Mokni & Iamónico 2024).

***Lablab purpureus* subsp. *uncinatus* Verdc. (Fabaceae)**

Morphology – (Fig. 1 D-H). *Lablab purpureus* is an herbaceous, climbing, scrambling, warm-season annual or short-lived perennial with a vigorous taproot; *stems* are glabrous or pubescent trailing, thick, herbaceous that can grow up to 1 m, and the climbing vines stretching up to 7(–8) m from the plant; *leaves* are alternate and trifoliate, long-stemmed, leaflets are rhomboid in shape, 7.5–15 × 8–14 cm broad each, acute at the apex, with a smooth above surface and a short-haired below side; *inflorescences* lax, fascicled, are many-flowered axillary racemes borne on elongated peduncles; *flowers* grow in clusters on an unbranched inflorescence in the angle between the leaf and the mainstem; corolla white, blue, or purple in colour, about 1.5 cm long, typically papilionaceous in shape; *fruits* (seedpods) are linear, 4–15 × 1–4 cm, flattened, smooth, green that turns light brown when mature and beaked containing between 2 and 8 seeds; *seeds* are white, cream, pale brown, dark brown, red, black, or mottled.

L. purpureus is the only accepted species in *Lablab* with three subspecies (subsp. *bengalensis* (Jacq.) Verdc., subsp. *purpureus* and the subsp. *uncinatus*), that were distinguished morphologically mainly by the aspect of inflorescence and the seedpod size among other. *L. purpureus* subsp. *uncinatus* is distinguished thoroughly by its lax, fascicled *inflorescences* and relatively smallness reproductive characters mainly fruits, 4.0×1.5 cm (vs. 15.0×2.5 cm and 10.0×4.0 cm for subsp. *bengalensis* and subsp. *purpureus* respectively) (see e.g., Adebisi & Bosch 2004; Sheahan, 2012; Heuzé & al. 2016; Vishnu & Radhamany 2020; Swamy 2023).

Global distribution, habitats and phenology – *L. purpureus* subsp. *uncinatus* has an East African origin from Eritrea to S. Africa with Madagascar and South India while as an introduced in Mali, Niger and Somalia (POWO 2026b). In its native range, *L. purpureus* subsp. *uncinatus* can be found in a wide variety of habitats, but often in wet or riverine habitats (Hyde & al. 2026). It was observed in flowers throughout the year (mainly from August to March) with peak blooming during the winter (Swamy 2023; Hyde & al. 2026).

Occurrence, habitat and phenology in Tunisia – The taxon was recorded in only one locality within Bizerta governorate (NE Tunisia) where several individuals (about three) were scrambling over palm trees within roadsides near agglomerations. Collected vouchers were in flowers and fruits in November.

Pathways of introduction and current naturalization status in Tunisia – *Lablab purpureus* subsp. *uncinatus* seems introduced as an ornamental plant and is spreading locally from seeds. It is here assessed for the first time as a casual alien to the Mediterranean, N-Africa and the Maghreb from Tunisia.

Specimens examined (new record) – TUNISIA. Bizerta: Bizerta-city, Sidi-Salem (Kharraz), 19 November 2023, *El Mokni s.n.* (Herb. El Mokni!)

***Tinospora cordifolia* (Willd.) Hook.f. & Thomson (Menispermaceae)**

≡ *Menispermum cordifolium* Willd.; ≡ *Cocculus cordifolius* (Willd.) DC.

Morphology – (Fig. 1 I-M). *T. cordifolia* is a climbing, woody, deciduous shrub that is well distinguished by its numerous coils and wide growth; *stems* striate when young with scattered lenticels becoming woody, fibrous bearing thin, smooth bark that is grayish-brown colored with a deep cleft longitudinally and spirally containing lenticels; *leaves* are alternately arranged, simple, heart-shaped, alternate, $6-15 (-20) \times 6-13 (-20)$ cm, and membranous with reticulate venation, *petioles*’ base twisted up 7.0 cm long; *flowers* are unisexual, racemes-type inflorescence and about 5 cm in length; *female flowers* are solitary, whereas *male flowers* bloom in clusters; *fruits* (drupelets) are single-seeded and fleshy (see e.g. Gupta & al. 2024b: 221, Fig. 2); seeds are curve-shaped.

Global distribution, habitats and phenology – *Tinospora cordifolia* is originating from the Indian Subcontinent to Indo-China including Assam, Bangladesh, East Himalaya, Maldives, Myanmar, Sri Lanka and Vietnam (Gupta & al. 2024a; POWO 2026c). The plant develops in numerous habitats, from forests and grasslands to wetlands, frequently rising on trees, rocks, and other structures over a wide range of soil pH - acidic to alkaline and moderate soil moisture. Flowering from May–June, while fruiting is witnessed in September–October (Forman 1981).

Occurrence, habitat and phenology in Tunisia – The plant was recorded in several local-

ities within the same area, climbing on different supports along the road towards Sidi-Bouزيد. During our fieldwork neither flowers nor fruits were found.

Pathways of introduction and current naturalization status in Tunisia – *Tinospora cordifolia* among several species of the genus are cultivated for medicinal, phytochemical and pharmacological activities (see e.g. Bhardwaj 2019; Malla & Bista 2021; Gupta & al. 2024a, 2024b) as well as for ornamental purposes. They can propagate easily through cutting where the twigs are cut down and are placed between the branches of the tree where they are able to establish themselves within some year as a climber (Abhijeet & Mokat 2018). In Tunisia, according to interviews undertaken with some local old farmers of the region, *T. cordifolia* was imported from Asiatic countries since more than 20 years as ornamental vine. Following the terminology of Pyšek & al. (2004), is here recorded for the first time as a casual alien to Tunisia, the African continent and the whole Mediterranean region.

Specimens examined (new record) – TUNISIA. Sidi-Bouزيد: Regueb, 18 December 2025, *El Mokni s.n.* (Herb. El Mokni!).

New NorthAfrican records

Ipomoea pes-caprae (L.) R.Br. (Convolvulaceae)

≡ *Convolvulus pes-caprae* L.

Morphology – (Fig. 1 N-K). *I. pes-caprae* is a prostrate to climbing perennial liana with large and thick tuberous roots up to 3 m long, and 5 cm in diameter; *stems* are numerous, herbaceous, prostrate, cylindrical, running along the ground and rooting at the nodes; *leaves* are simple, alternately arranged, dark green, and glabrous with variable but typically ovate, orbicular, or oblong shape, the leaf base is truncate to shallowly cordate, and the apex is usually notched to deeply cleft but is sometimes rounded or truncated; *petioles* vary in length, ranging from 2 to 15 cm bearing a pair of red to black nectaries (nectar-producing glands) at their juncture on the underside of each leaf blade; *flowers* (6.4–7.6 cm wide) are characteristically pinkish lavender funnel-shaped; *fruits* (dehiscent capsules) are ovoid to flattened-globose, 1.3–1.9 cm; *seeds* are rounded to trigonous (three-sided), covered with dense, velvety hairs, 1.5–2.5 cm long (Devall 1992; Pereda-Miranda & al. 2005; Brown & Frank 2020).

Global distribution, habitats and phenology – *Ipomoea pes-caprae* is among the most widely distributed beach plants in the world. Although the exact native range of the plant remains unclear, it is found in the wild within subtropical and tropical zones worldwide, including the West Indies, the Americas (along the Atlantic coast of Georgia and Florida, and along the Gulf coast from Florida to Texas), Africa, Asia, Australia, and the Pacific Islands. *I. pes-caprae* is recognized as a halophytic plant originally known for colonizing sandy dunes along coastal beaches with few reports on the occurrence of large populations of *I. pes-caprae* in inland habitat. Flowering season from May to September (locally, year-round) (St. John 1970; Devall 1992; Devall & Thien 2005).

Occurrence, habitat and phenology in Tunisia – The species was recorded in several localities (Esteftimi, Kebili-city, Bchelli, Sabria) within Kebili governorate (SW Tunisia), climbing on different supports along roadsides and creeping on sandy dunes near agglomerations. All collected plants were in flowers and fruits during December.



Fig. 1. *Campsis grandiflora* (A-C), *Lablab purpureus* subsp. *uncinatus* (D-H), *Tinospora cordifolia* (I-M), *Ipomoea pes-caprae* (N-K). (All Photographs by Ri. El Mokni except D-H by Ra. El Mokni).

Pathways of introduction and current naturalization status in Tunisia – *Ipomoea pes-caprae* can be found in distributed sandy beaches or in sunny roadside areas with a characteristic high-temperature and dry environment exhibits great salt tolerance and drought resistance (Miryeganeh & al. 2014). When the stems are broken by a storm or when the stolons closer to the sea are washed away, they regrow quickly by vegetative reproduction (Okui & al. 2003). The vines of *I. pes-caprae* easily sprout adventitious roots, and the depth of primary roots can reach three m for water uptake (Kamakura & Furukawa 2009). In Tunisia, according to interviews undertaken with some local old farmers of the region, *T. cordifolia* was imported from foreign African countries only three years ago as an ornamental vine excluding any medicinal purposes. Its dispersal seems more with seeds in the surroundings and stems cuttings to other faraway areas. Following the terminology of Pyšek & al. (2004), it is here assessed for the first time as a casual alien to Tunisia, the Maghreb within N-African continent and the whole Mediterranean region.

Specimens examined (new records) – TUNISIA. Kebili: Esteftimi, 19 December 2025, *El Mokni s.n.* (Herb. El Mokni!), Kebili-city, 19 December 2025, *El Mokni s.n.* (Herb. El Mokni!), Bchelli, 19 December 2025, *El Mokni s.n.* (Herb. El Mokni!), Sabria, 19 December 2025, *El Mokni s.n.* (Herb. El Mokni!).

Solandra maxima (Moc. & Sessé ex Dunal) P.S.Green, (*Solanaceae*)

≡ *Datura maxima* Moc. & Sessé ex Dunal

Morphology – (Fig. 2 A-C). *Solandra maxima* is a fast-growing, vigorous climbing vine up to 12 m high; *leaves* are alternately arranged, broad-elliptical to oblong, 5–18 × 2–9 cm in size, leathery, glossy on top and usually short-acuminate; flowers usually solitary or in small terminal clusters and borne on short pedicels, exhibiting a distinctive funnel-shaped morphology, *calyx* is 5–8 cm long, pentagonal and consists of three to five cusps, *corolla* is 15–24 cm long and consists of large, rounded, 8–15 cm wide lobes, creamy white to light yellow at the start of flowering and changes color to ocher to orange during flowering, violet or brown bands run deep into the flower tube across the center, *stamens* protrude from the flower tube; fruits (berries) round, conical and leathery, 4–5 × 5–6(–7) cm on which the sepals are preserved, initially green turn to pale yellow when maturing; *seeds* numerous small, reniform embedded in the pulp. (see e.g. Orchard 1994).

Global distribution, habitats and phenology – *Solandra maxima* (commonly known as Cup of gold) is native to the tropical forest of the Mesoamerica, from Mexico, Central America and the northern of South America (Colombia and Venezuela) (e.g. Barnardello & Hunziker 1987; Sarmiento & Boettler 2011). In its native habitats, it prefers seasonally dry tropical biomes, including deciduous and semi deciduous forests, scrublands, and edges of woodland areas. *Solandra maxima* has been introduced to several regions outside its native range, primarily through human-mediated dispersal for ornamental purposes. It is introduced in the Canary Islands, Cook Islands, Ecuador, Fiji, Madeira, Mauritius, Norfolk Island, Spain, Vanuatu, and Venezuela (POWO 2026d). The species is also widely cultivated in tropical and subtropical areas, including Florida in the United States, Hawaii, and parts of Australia, where it is valued as a vigorous evergreen vine for garden landscapes. In Europe, the species was known to be as an introduced outdoor ornamental plant (Salerno & Stinca 2017) since its first report as casual alien in Italy and Spain (Salerno & Stinca 2017; Senar & Cardero 2019) and more recently as naturalized from Spain (Lomas



Fig. 2. *Solandra maxima* in Tunisia. A. Habit as a climbing shrub with simple entire glabrous leaves, B. A solitary short pedicellate flower, C. Front view of a solitary typical creamy to ochre funnel-shaped flower (Photographs by Ri. El Mokni).

& al. 2025). In North Africa, the species was reported only within Canary Islands (La Palma, Tenerife) as an escaped from cultivation (Otto & Verloove 2016; Verloove 2017). The plant typically flowers from late winter through spring from December to May(-June), with peak blooming occurring in early spring and continue through early summer.

Occurrence, habitat and phenology in Tunisia – The species was recorded in several localities within Monastir governorate (CE Tunisia), Tunis governorate (NE Tunisia) and Jendouba; Tabarka (NW Tunisia) where it scrambles over trees and different supports within roadsides near agglomerations. All collected plants were in flowers from December to May.

Pathways of introduction and current naturalization status in Tunisia – In the African inland as in Tunisia (N-Africa), the exact mode of introduction of *Solandra maxima* is unknown but at present the nursery trade probably indeed represents the species' main vector of introduction and locally dispersal. It is here assessed for the first time as a casual alien to Africa from Tunisia.

Specimens examined (new records) – TUNISIA. Monastir: Monastir-city, 20 May 2022, *El Mokni s.n.* (Herb. El Mokni!), *ibidem*, 1 December 2024, *El Mokni s.n.* (Herb. El Mokni!); Tunis, El Manar, 11 January 2025, *El Mokni s.n.* (Herb. El Mokni!); Jendouba, Tabarka, 12 March 2025, *El Mokni s.n.* (Herb. El Mokni!).

New national distributional records for lianas already known from Tunisia

Ipomoea batatas (L.) Lam. (*Convolvulaceae*) (Fig. 3. A-B).

≡ *Convolvulus batatas* L.; ≡ *Solanum batatas* (L.) Aikman

New record – TUNISIA. Gafsa (TS): Gafsa-city, 30 December 2025, climbing within roadsides on the stump of a dead trees of *Ficus microcarpa* L.f., *El Mokni s.n.* (Herb. El Mokni!).

Previous national distribution, habitat and actual degree of naturalization – (Fig. 3 G). Originating from Mexico to Venezuela and Ecuador but introduced and well naturalized in many countries all over the world. The species was known in Tunisia only from Monastir governorate (Monastir-city) in the central-eastern part of the country (El Mokni 2024). It is reported here for the second time in Tunisia, where it was recently collected within roadsides on the stump of a dead trees of *Ficus microcarpa* L.f., in the southwestern part of the country within Gafsa governorate (Gafsa-city). This record confirms the status of casual alien for Tunisia

Lablab purpureus (L.) Sweet subsp. ***purpureus*** (*Fabaceae*) (Fig. 3 E-F).

New records – TUNISIA. Mahdia (CE): Hiboun, 25 January 2026, climbing within the cactus hedges on the railways towards Mahdia city; Monastir (CE): Bouhjar, 25 January 2026, climbing on *Arundo donax* L. on the banks of a stream running through the city, *El Mokni s.n.* (Herb. El Mokni!).

Previous national distribution, habitat and actual degree of naturalization – (Fig. 3 G). Originating to Cape Verde, west & west central Africa (POWO 2026e) but now widely cultivated pantropically where it seems to have been introduced by human activities and then escaped from cultivation (see e.g. Cambria & al. 2022). The taxon was known in Tunisia from Jendouba (NW, Fernana), Tunis (NE, Bab Saâdoun) and Monastir (CE, Zaouiet Kontich, Masjed Aissa and Ouwardanine) (El Mokni 2018c). It is reported here from cen-

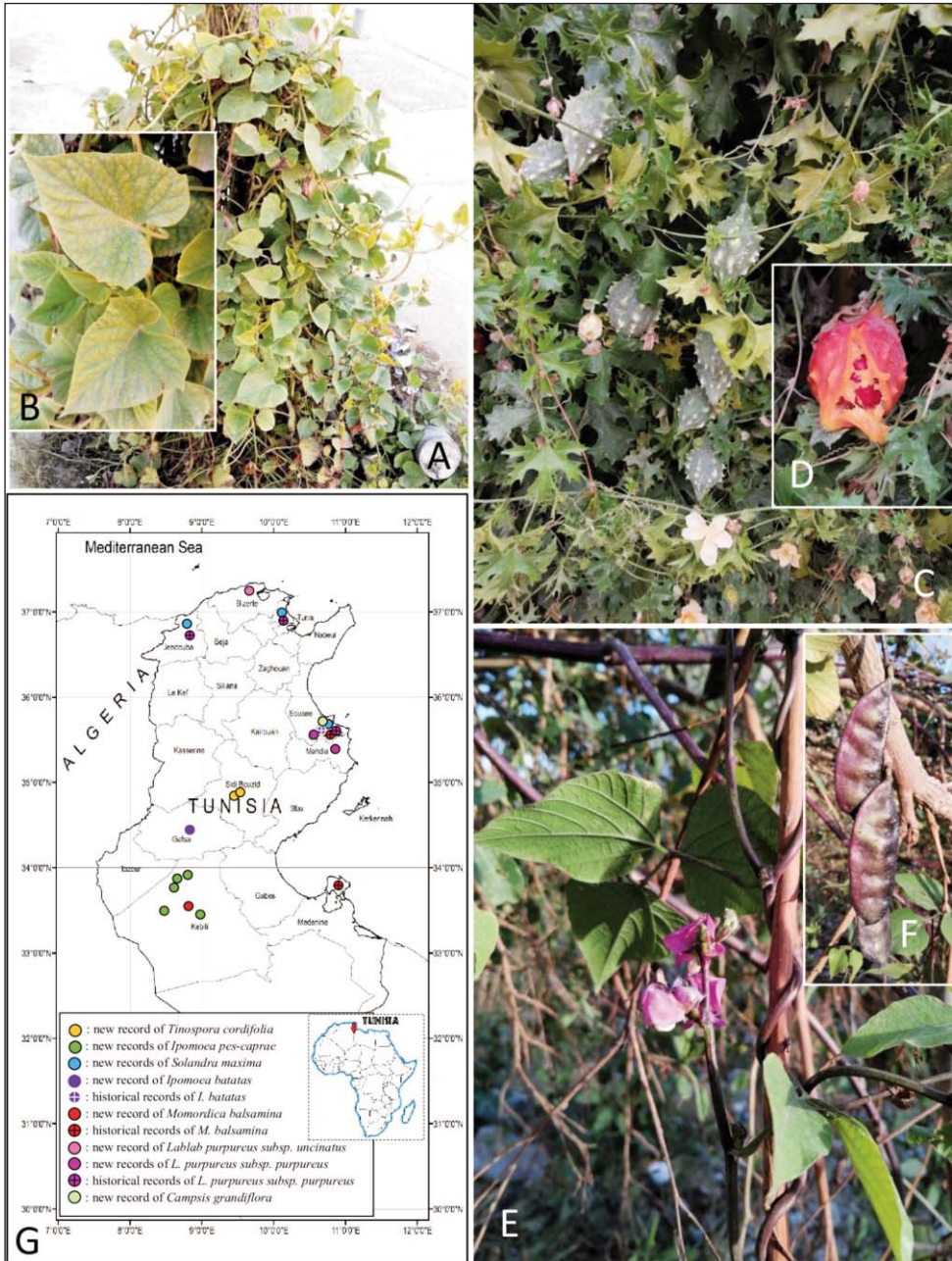


Fig. 3. A-B. *Ipomoea batatas*, Gafsa 30.12.2025. C-D. *Momordica balsamina*, Kebili 19.12.2025. E-F. *Lablab purpureus* subsp. *purpureus*, Mahdia 25.1.2025. G. Actual geographic distribution of *Campsis grandiflora*, *Tinospora cordifolia*, *Ipomoea pes-caprae*, *Solandra maxima*, *Lablab purpureus* subsp. *uncinatus*, *Ipomoea batatas*, *Lablab purpureus* subsp. *purpureus* and *Momordica balsamina* in Tunisia (Photographs by Ri. El Mokni).

tral-eastern Tunisia within Mahdia (Hiboun) and Monastir (Bouhjar) governorates, where it was recently collected within roadsides climbing on *Arundo donax* L. on the banks of a stream running through the city of Bouhjar and within the cactus hedges on the railways towards Mahdia city. This record confirms the status of naturalized alien in Tunisia, mainly within the central-eastern part of the country.

***Momordica balsamina* L. (Cucurbitaceae)** (Fig. 3 C-D).

New record – TUNISIA. Kebili (TS): Sabria, 19 December 2025, within roadsides climbing on deserted buildings, *El Mokni s.n.* (Herb. El Mokni!).

Previous national distribution, habitat and actual degree of naturalization – (Fig. 3 G). Native to Tropical and Southern Africa, southwestern Arabian Peninsula and Australia but introduced with different status of naturalization in the Americas, India, Palestine, Pakistan and Oman (Jeffrey 1978; Bosch 2004; POWO 2026f). The species was known in Tunisia from Medenine, (SE, Djerba-Mezraya) and Sousse (CE, Bourjine) (El Mokni & Debruille 2021). It is reported here in Tunisia and N-Africa within Kebili (Sabria) governorate, where it was recently collected within roadsides climbing on walls of deserted buildings. This record confirms the status of casual alien for Tunisia and North Africa.

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