Verbena incompta (Verbenaceae), an overlooked xenophyte in Europe

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Abstract

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Verbena incompta, of presumed South American origin, is reported as a naturalised but overlooked xenophyte in Italy and Spain. The affinity of the species is discussed, emphasising on its separation from the related V. bonariensis and V. brasiliensis in V. series Pachystachyae, and ecological and chorological notes are added. The three species are illustrated by digitised representative herbarium specimens.

Additional key words: Verbena ser. Pachystachyae, taxonomy, Italy, Spain

Introduction

Verbena series Pachystachyae Schauer (1847) comprises c. 45, predominantly South American species (O’Leary & al. 2007; or only 15 species according to Nesom 2010a) with relatively short and thick, dense inflorescence spikes, closely overlapping fruits and unlobed leaves (Nesom 2010a). It includes reputed environmental weeds such as V. brasiliensis Vell. but also popular ornamentals such as V. bonariensis L. and V. rigida Spreng. Despite the existence of a recent monograph of the series Pachystachyae (O’Leary & al. 2007), the taxonomy and nomenclature of the V. bonariensis complex remains very controversial (compare with Michael 2008; Nesom 2010b).

In the course of a floristic inventory of the coastal area around Pietra Ligure (prov. Savona, Liguria, Italy) in September 2004, I was confronted with several populations of a tall, apparently non-native species of Verbena. It was easily identified as the South American Verbena brasiliensis, an increasing environmental weed in several parts of Europe (see for instance Verloove 2003, 2005, 2006). However, some plants were characterised by sessile-amplexicaul leaves and therefore did not correspond with the usual circumscription of this taxon (typically with attenuate-petiolate leaves). These plants appear to be in some respects intermediate between V. bonariensis and V. brasiliensis and were recently described as a species new to science, V. incompta P. W. Michael (1995). Identical plants were seen in abundance in the surroundings of San Sebastian (prov. Guipúzcoa, Spain) in September 2006.

Verbena incompta, much more reputed as a weed than V. bonariensis and without any ornamental value, possibly has been confused so far in parts of southern Europe, where the latter is claimed as a naturalised alien (in Italy, Portugal, Spain, also in Macaronesia). Given its incipient invasive behaviour, it seems important to draw attention to this confusion and provide identification aids for the distinction of these three closely related non-native species of Verbena.

Taxonomy

Verbena incompta P. W. Michael in Telopea 6: 181. 1995 – Fig. 1.

Description. — Erect herb of indefinite duration (annual to perennial; in the latter case usually flowering in the first year), 50–200 cm tall. Stem sharply 4-angled, hispid on the angles. Leaves sessile, semi-amplexicaul to subamplexicaul, lanceolate, up to 15 × 3 cm, sharply and irregularly serrate, entire towards the base, rugose-scabrous on
Fig. 1. *Verbena incompta* – representative individual; herbarium specimen collected in Spain.
Fig. 2. Verbena bonariensis – representative individual; herbarium specimen collected in France.

EX HERBARIO UNIVERSITATIS LEUDEMISI (LG)
(Leu, Belgica)

Verbena bonariensis L. var. complanata Roth.
5 septembre 2007
Plante cultivée en bacs à fleurs, mais ici assez abondamment spontanée.
Leg. et det. J. Lambinon n° 079/118
both surfaces. *Inflorescence* corymbose to spicate. *Spikes* subcylindrical, 3–10 in number, up to 5(–7) cm long and up to 5 mm wide at maturity. *Flowers* small, numerous, opening together in a circle immediately below the apex of the spike. *Floral* bracts ovate-lanceolate, 2–3 mm long, eglandular or with minute and very sparse stalked glands. *Corolla* blue to purplish, limb c. 2.75–3.75 mm wide tube 2.75–3.25 mm long, slightly curved and hardly exceeding the calyx tube. Upper anthers inserted above the middle of the corolla tube. *Fruit* included in the persistent calyx tube, glabrous, splitting into 4 cylindrical-oblong brown mericarps; *seeds* 1.3–1.5 mm long, ribbed on outside, weakly reticulate at the distal end with abundant verrucose papillae on their inner commissural faces.

**Relationships and delimitation.** — Michael (1995) discussed the relationship of *Verbena incompta* with *V. bonariensis* and *V. brasiliensis*, but the affinities of the species remain more or less obscure. Yeo (1990), who contemplated describing it as a new species, recognised it as an aberrant but widespread form of *V. brasiliensis*, characterised by sessile leaves, thence considerably broadening its traditional circumscription. Munir (2002), in turn, thought Michael’s *V. incompta* to be conspecific with *V. bonariensis* and reduced it to synonymy of the latter. His view was later followed by O’Leary & al. (2007) but this was entirely based on a different, erroneous interpretation of the Linnaean type of *V. bonariensis* (Michael 2008; Nesom 2010b). The absence of any intermediacy between the latter and *V. incompta* despite their broad sympatry (Nesom 2010b) indicates that it is reproductively isolated. As a result, *V. incompta* is accepted, beside *V. bonariensis* and *V. brasiliensis*, in scheduled volumes of important floras such as *Flora of North America* (Nesom 2010b).

*Verbena incompta* (Fig. 1) indeed much resembles *V. bonariensis* (Fig. 2) as well as *V. brasiliensis* (Fig. 3). With the former it has the sessile-amplexical leaves in common, whereas it shares the inconstant corollas, small mericarps and long inflorescence spikes with *V. brasiliensis* (compare Fig. 1–3). Like the latter, it lacks ornamental value because of its tiny corollas. The corollas of *V. brasiliensis* and *V. incompta* are only slightly narrower than in *V. bonariensis* (c. 2.75–3.75 mm versus 4.25–5.5 mm according to Yeo 1990), but they are hardly expanded from the calyx tube and most become even virtually invisible in herbarium specimens. Moreover, ripe mericarps of *V. incompta* (and *V. brasiliensis*) are smaller than in *V. bonariensis*. According to Munir (2002) this character is variable and therefore unreliable (“nutlets are not uniform within these taxa”). However, Yeo (1990) showed that “when the sample means are plotted for both characters the area of overlap is small”.

As a consequence, “(...) discrimination of *V. incompta* from *V. bonariensis*, is thus nicely supported”.

Michael (1995, 2008) provides some additional characters to distinguish between *Verbena bonariensis* and *V. incompta*. In the latter two species, minute stalked glands on calyx tube and pedicels are absent or very sparse, whereas glands are more or less abundant in *V. bonariensis*. Finally, the insertion level of the upper stamens in the corolla tube slightly differs: they are inserted above the middle in *V. incompta* but beneath the middle in *V. bonariensis*.

Good photographs of *Verbena bonariensis* and *V. incompta* (as “*V. brasiliensis*”) are presented by Shimizu & al. (2001). They perfectly show the very different guise of both species (and the close resemblance in general habit of *V. brasiliensis* and *V. incompta*). Reliable pictures are further available in several different internet sources, for instance: http://had0.big.ous.ac.jp/plantsdic/angiospermae/dicotyledoneae/sympetalae/verbenaaceae/dakibaarechihanagasa/dakibaarechihanagasa.htm or http://mikawano-yasou.org/data/dakibaarechihanagasa.htm.

In the following identification key the three tall species of *Verbena* currently found in Europe are distinguished:

1. Leaves (sub-)petiolate, distinctly tapering to base. Corollas not showy, limb c. 2.75–3.75 mm wide, tube 2.75–3.25 mm long, hardly exserted from calyx tube ............................ *Verbena brasiliensis*

2. Leaves sessile-amplexicaul, not tapering to base; corollas either inconstant as above or showy .... 2

2. Corollas not showy, limb c. 2.75–3.75 mm wide, tube 2.75–3.25 mm long, hardly exserted from calyx tube; mericarps 1.2–1.5 mm long; inflorescence spikes slender and subcylindrical, usually up to 5(–7) cm long ............................ *V. incompta*

3. Corollas showy, limb c. 4.25–5.5 mm wide, tube 5.5–7 mm long, well exserted from calyx tube; mericarps 1.5–2.1 mm long; inflorescence spikes usually short and thick, frequently congested at maturity, rather rarely more than 1.5 cm long .... *V. bonariensis*

**Herbarium specimens examined.** — ITALY: Province of Savona: Pietra Ligure, river Maremola, dry riverbed, very common, 11.9.2004, F. Verloove 5858 (RO; herb. Verloove; herb. Eric J. Clement; herb. P. W. Michael); Pietra Ligure, torrent Maremola, sinistra idrografica, presso l’incrocio con via della Repubblica, 8°17’12", 44°9’15", greto di torrente, con *Verbena litoralis var. brasiliensis*, c. 10 m, 17.7.2006, G. Galasso s.n. (BR, MSNM, sub *V. bonariensis*).


**Distribution and origin.** — *Verbena incompta*, *V. bonariensis* and *V. brasiliensis* are most likely widespread native South American taxa, occurring in Argentina,
Fig. 3. *Verbena brasiliensis* – representative individual; herbarium specimen collected in Italy.
it is confined to southern Brazil, Uruguay, Paraguay and northern Argentina. Hence and a priori, it is less likely to occur as a weedy casual outside its native range. However, because of its showy flowers it is a popular garden plant nowadays in Europe and it is increasingly found as a garden escapee across Europe (even in northern Europe) but often remains an ephemeral casual up to present.

Ecology and habitat. — *Verbena incompta* is found in a more or less wide range of habitats. It predominantly occurs in dry river beds, ditches, by road verges or, more rarely, in ruderal areas. Its habitats are always, at least temporarily, moist and are, up to present, confined to coastal areas. Quite often they are regularly disturbed. The species here concerned are often said to be perennial but, in fact, they more often behave like annuals.


*Verbena incompta* is a declared noxious weed in many temperate and subtropical areas worldwide. Monitoring of the future spread of this species and *V. brasiliensis* in southern Europe seems appropriate.

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References


