The Euro+Med treatment of *Anthemideae* (*Compositae*) – generic concepts and required new names

Abstract


A synonymic survey of *Anthemideae* genera accepted for the purpose of the Euro+Med Project is presented. As a consequence of nomenclatural revision, shifts in generic circumscription or reassessment of accepted specific and subspecific taxa, combinations that are required in the genera *Achillea*, *Anthemis*, *Artemisia*, *Cota*, *Leucanthemum*, *Mecomischus*, *Phalacrocarpum*, *Rhodanthemum* and *Tanacetum*, but do not so far exist, are validated. A North African species hitherto lacking a valid name is described anew as *Plagius maghrebinus*.

Introduction

Euro+Med PlantBase is an international cooperative research project sponsored by the European Union and other bodies. It is coordinated by the School for Plant Sciences, University of Reading, U. K. In its present, initial phase of operation it is being funded through the EU’s 5th Framework Programme for Research and has committed itself to deliver by the end of September 2003, among other things, an “Updated Synonymic Catalogue of the [Vascular] Plants of Europe”. It is also preparing a working list of plant species and subspecies for the whole Euro+Med area, a vast portion of the globe comprising Europe (in the sense of Flora Europaea), the Mediterranean Area (as covered by Med-Checklist), Caucasia, Madeira and the Canary Islands. The main aims and structures of the Programme are displayed on the Internet (http://www.euromed.org.uk).

The final phase of editing the European Synonymic Catalogue and the Euro+Med working list takes place under conditions of strenuous work and unprecedented time stress. Synonymies established in the process, and nomenclatural checking, inevitably lead to a number of names being adopted that were not before validated. As the Catalogue is to be presented in print but will likely be produced in a limited number of copies, it is felt that it would be most undesirable that new combinations be validated in its body.

The editorial panel for the Checklist has therefore accepted the offer to publish at short notice the required new names and combinations in a series of “Notulae”, in the journal Willdenowia.
This outlet is not necessarily intended as a one-off opportunity but may, if needed, be extended into the future, when work on the Catalogue and working list proceeds after the initial phase of implementation.

It is already certain that not all portions of the Catalogue and list will be ready by the deadline for submission of texts to the current issue of Willdenowia. In all likelihood, in the weeks to come further cases of names that are needed but were not so far validly published will turn up. Hopefully a way will be devised by which their validation in the printed list can be avoided, and postponed for inclusion in the next subsequent issue of Willdenowia.

The senior author of this note took charge of editing the Compositae family as a whole. In so doing, he sought the advice of competent specialists of the various tribes, principally but not exclusively on questions of generic delimitation. For the Anthemideae he obtained it from the two junior authors.

**Euro+Med Anthemideae – a generic survey**

The Euro+Med genera of *Anthemideae* accepted by us, with their relevant synonyms, are listed in Table 1. No complete synonymy is given, but those generic names that were adopted in recent floristic literature for the area have been taken into account.

### Table 1. The Euro+Med genera of *Anthemideae*. Accepted names appear in bold-face type, their synonyms in italics. Bracketed names are of xenophytic (non-native) genera, quotation marks denote names applied in a sense that excludes their presently accepted type.

<table>
<thead>
<tr>
<th>Aaronsohnia</th>
<th>Cota</th>
<th>Maurantheum</th>
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<tr>
<td>Achillea</td>
<td><em>Cotula</em></td>
<td><em>Leucoglossum</em></td>
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<td><em>Daveaua</em></td>
<td><em>Mecomischus</em></td>
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<td>Anacyclus</td>
<td><em>Endopappus</em></td>
<td><em>Fradinia</em></td>
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<td>Anthemis</td>
<td><em>Glebionis</em> = “Chrysanthemum”</td>
<td><em>Nanthemea</em></td>
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<td><em>Nivellea</em></td>
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<td>Arctanthemeum</td>
<td><em>Glossopappus</em></td>
<td><em>Otantheme</em></td>
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<td><em>Diotis</em></td>
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<td>Argryranthemeum</td>
<td><em>Gonospermum</em></td>
<td><em>Otospermum</em></td>
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<td>Artemisia</td>
<td><em>Heliocanta</em></td>
<td><em>Pentzia</em></td>
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<td><em>Heteranthemis</em></td>
<td><em>Phalacrocarpum</em></td>
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<td>= <em>Pinardia</em></td>
<td><em>Plagius</em></td>
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<td>Brocchia</td>
<td>Heteromera</td>
<td><em>Prolongoa</em></td>
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<td>Castrilanthemum</td>
<td>Hymenostemma</td>
<td><em>Rhinolepis</em></td>
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<td>Chamaemelum</td>
<td><em>Ismelia</em></td>
<td><em>Rhodantheme</em></td>
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<td><em>Lasiospermum</em></td>
<td><em>Santolina</em></td>
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<td>Chlamydophora</td>
<td>Lepidophorum</td>
<td>[Soliva]</td>
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<td><em>Leucanthelella</em></td>
<td>= <em>Gymnostyles</em></td>
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<td>[Chrysanthemum]</td>
<td><em>Leucanthelemis</em></td>
<td><em>Tanacetum</em></td>
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<td></td>
<td><em>Leucanthemeum</em></td>
<td>= [Balsamita]</td>
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<tr>
<td>Chrysanthoglossum</td>
<td><em>Leucocycles</em></td>
<td>= <em>Pyrethrum</em></td>
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<td>Cladanthes</td>
<td>Lonas</td>
<td><em>Tripleurospermum</em></td>
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<td>= <em>Ormenis</em></td>
<td>= <em>Dibothropermum</em></td>
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<td>Coleostephus</td>
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<td>= <em>Chremoteria</em></td>
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Since 1976 when vol. 5 of Flora Europaea was published, Anthemideae systematics have progressed considerably. As a result of new in-depth studies of phenotype features and, more recently, DNA sequences, combined with reasonably strict adherence to the tenets of phylogenetic systematics, several of the previously accepted genera have been remodelled, fused or split.

Fortunately a modern world survey of Anthemideae genera and their species exists, by Bremer & Humphries (in Bull. Nat. Hist. Mus., Bot. 23: 71-177. 1993), which takes into account the relevant facts and hypotheses known to date. This we have largely followed with respect to generic circumscription (e.g. by including Hulteniella in Arctanthemum) and nomenclature (e.g. by accepting Tripleurospermum while considering Chamomilla synonymous with Matricaria; see also Applequist in Taxon 51: 757-761. 2003), with the following exceptions.

We take a wider view than Bremer & Humphries of Artemisia, in which we include Seriphidium (see Vallès & al. in Pl. Biol. 5: 274-284. 2003), and of Gonospermum, to include Lugoa (Francisco-Ortega & al. in Amer. J. Bot. 88: 161-169. 2001).

Conversely, following a narrower concept of genera based on recent results from DNA sequence analysis, we separate Cota from Anthemis (see Oberprieler in Taxon 50: 745-762. 2001) and Brocchia from Cotula (Oberprieler, unpublished data). We also recognise the recently described Castrilanthemum (Vogt & Oberprieler in Anales Jard. Bot. Madrid 54: 342 1996), based on a previously unassessed, poorly known species.

Ormenis, placed in Chamaemelum by Bremer & Humphries, was recently shown to be better at home in Cladanthus instead (Oberprieler in Bot. J. Linn. Soc. 138: 255-273. 2002; Oberprieler & Vogt in Willdenowia 32: 197. 2002).

Finally, since 1993, two nomenclatural changes took place at the generic level. Consequent to the adoption of a proposal (Trehane in Taxon 44: 439-441. 1995) to conserve the name Chrysanthemum with C. indicum as its conserved type, i.e., in the sense of the ornamental chrysanthemums of the trade, Dendranthema reverted to the name Chrysanthemum while the former genuine Chrysanthemum of Mediterranean countries takes the name Glebionis. Furthermore, Leucoglossum Wilcox & al., being an illegitimate later homonym of the ascomycete Leucoglossum S. Imai, was replaced by Mauranthemum (Vogt & Oberprieler in Taxon 44: 377-378. 1995).

Achillea


Anthemis


Anthemis macedonica subsp. orbelica (Pančić) Oberprieler & Greuter, **comb. nova** \(\equiv\) Anthemis orbelica Pančić, Nova Elem. Fl. Bulg.: 27. 1886.


Artemisia alba subsp. kabylica (Chabert) Greuter, **comb. nova** \(\equiv\) Artemisia kabylica Chabert in Bull. Soc. Bot. France 36: 27. 1889. – The new combination was previously used by Quézel & Santa, Nouv. Fl. Algérie: 990. 1963, being ascribed to M[aire], but has not apparently been validated so far.


Cota
cota dalmatica (Scheele) Oberprieler & Greuter, **comb. nova** \(\equiv\) Anthemis dalmatica Scheele in Linnaea 18: 464. 1845.


cota halophila (Boiss. & Balansa) Oberprieler & Greuter, **comb. nova** \(\equiv\) Anthemis halophila Boiss. & Balansa in Boissier, Fl. Orient. 3: 285. 1875.


cota monantha (Willd.) Oberprieler & Greuter, **comb. nova** \(\equiv\) Anthemis monantha Willd., Sp. Pl. 3: 2187. 1803.


Leucanthemum

Leucanthemum coronopifolium subsp. ceratophylloides (All.) Vogt & Greuter, comb. nova ≡ Chrysanthemum coronopifolium subsp. ceratophylloides (All.) Nym., Syll. Fl. Eur.: 10. 1855 ≡ Chrysanthemum coronopifolium subsp. ceratophylloides (All.) P. Fourn., Quatre Fl. France: 974. 1939

Leucanthemum coronopifolium subsp. tenuifolium (Guss.) Vogt & Greuter, comb. nova ≡ Pyrethrum tenuifolium (Guss.) P. Fourn., Quatre Fl. France: 974. 1939


Leucanthemum ircutianum subsp. leucolepis (Briq. & Cavill.) Vogt & Greuter, comb. nova ≡ Leucanthemum vulgare subsp. leucolepis Briq. & Cavill. in Burnat, Fl. Alpes Marit. 6: 93. 1916.

Leucanthemum visianii (Gjurašin) Vogt & Greuter, **comb. nova** ≡ Chrysanthemum visianii Gjurašin in Glasnik Hrvats. Prirodoslov. Društva 32: 84. 1920 ≡ Chrysanthemum leucanthemum var. lacinatum Vis., Fl. Dalm. 2: 866. 1847.


Mecomischus

Mecomischus pedunculatus (Coss. & Durieu) Oberprieler & Greuter, **comb. nova** ≡ Cladanthus pedunculatus Coss. & Durieu in Bull. Soc. Bot. France 4: 14. 1857. – The new combination was previously used by Quézel & Santa (Nouv. Fl. Algérie: 972. 1963), being ascribed to M[aire], but has not apparently been validated so far.

Phalacrocarpum

Phalacrocarpum oppositifolium subsp. anomalum (Lag.) Vogt & Greuter, **comb. nova** ≡ Chrysanthemum anomalum Lag. in Varied. Ci. 2(4): 40. 1805 ≡ Phalacrocarpum anomalum (Lag.) Cout., Fl. Portugal: 631. 1913.

Plagius


The epithet refers to the Maghreb countries (Tunisia, Algeria, Morocco), in which the species is growing. Its nomenclature has been and still is in a state of chaos, caused by successive generations of well-meaning but ill-doing botanists. The story is complex: we shall try and keep to the essentials.

Linnaeus (Sp. Pl., ed. 2: 1257. 1763) described *Cotula grandis* L. from “Barbaria” (North Africa), mentioning incidentally a similar (but in fact quite different) plant sent to him by Allioni. *C. grandis* is the basionym of *Plagius grandis* (L.) Alavi & Heywood, the correct name of a species endemic to Algeria and Tunisia. Jacquin (Obs. Bot. 4: 4, t. 81. 1771) described and figured what is clearly Allioni’s taxon under the name *C. discoideum*. Allioni (Fl. Pedem. 1: 190. 1785), when describing as *Chrysanthemum discoideum* All. the plant from the SW Alps, cited *Cotula grandis* in synonymy, making *C. discoideum* illegitimate and automatically typified by the North African element.

Desrousseaux (in Lamarck, Encycl. 3: 737. 1792) described a plant from the Nizza County cultivated in the Jardin du Roi in Paris – obviously the same taxon as was known to Allioni and Jacquin – under the name *Matricaria virgata* Desr. In synonymy he cited *Cotula grandis* (from Jacquin) and *Chrysanthemum discoideum*. At first sight one might suspect that *M. virgata*, by inclusion of these two synonyms both based on Linnaeus’s *Cotula grandis*, is in turn illegitimate.

But this is not so, because Desrousseaux excluded *Cotula grandis* from his concept of *M. virgata* by basing a different name on it: *M. grandis* (L.) Desr. (l.c.: 738). The type of *M. virgata* is a specimen in the Lamarck Herbarium (P-LA, IDC microfiche #349-41), representing Allioni’s species, and the name served as basionym for *Plagius virgatus* (Desr.) DC. (Prodr. 6: 135. 1838) and later of *Leucanthemum virgatum* (Desr.) Clos (in Bull. Soc. Bot. France 17: 185. 1870), which is now its correct name.

Later in the same year Desfontaines (in Actes Soc. Hist. Nat. Paris 1: 2. 1792) published *Balsamita virgata* Desf., describing the same plant as Desrousseaux; he cited in synonymy both...
Cotula grandis L. and the illegitimate, homotypic Chrysanthemum discoideum All. The actual, North African C. grandis he re-described simultaneously as a new species, B. grandiflora; as the latter is without synonymy, it is now a legitimate, heterotypic synonym of Plagius grandis. Even though Desfontaines does not mention Matricaria virgata Desr., Balsamita virgata is not the name of a new species (as such it would be illegitimate) but, under Art. 33.2 of the International Code of Botanical Nomenclature, a new combination based on the legitimate M. virgata.

Besides Plagius grandis, there is a second North African Plagius species that was unknown to 18th century botanists. Early 19th century collectors failed to distinguish it from the species of the SW Alps and distributed it as P. virgatus. Boissier (Diagn. Pl. Orient., ser. 2, 3: 26. 1856) described it as Leucanthemum fontanesii, but unfortunately he fell victim to the same equivocation and cited “Balsamita virgata Desf.” in synonymy. As he failed to exclude the latter’s type, either explicitly or by implication, L. fontanesii is an illegitimate renaming of Matricaria virgata. When Vogt (in Lagascalia 18: 303. 1996) transferred the epithet fontanesii to Plagius he explicitly excluded Plagius virgatus (Desr.) DC., i.e., the element causing the illegitimacy of L. fontanesii, from the species at hand. But then, he was in effect dealing with a new, so far unnamed species. His Plagius fontanesii, erroneously proposed as a new combination for which no type was designated, fails to meet the criteria for valid publication.

Rhodanthemum


Tanacetum


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