

A NEW SPECIES OF URTICA FROM THE PAPUAN HIGHLANDS AND AN EMENDED DISTINCTION OF URTICA URENS AND DIOICA

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Among the duplicate specimens collected by Dr. L. J. Brass, recently received, there is a collection of an *Urtica* which roused the attention of Dr. Van Steenis, because of the facts that it is the first collection of the genus in New Guinea and that it was collected in a completely uninhabited, remote spot at high altitude, which makes it almost certain that it is indigenous. Another argument, pointing in the same direction was, that it did not fit either *U. urens* L. or *U. dioica* L. I was delighted to be allowed to try to find the identity of this plant.

One should of course in such a case, after careful examination of its characters try to correlate it with species described or recorded from Malesia and adjacent regions. Within Malesia only *U. bullata* Bl. occurs which is a quite different species. Among the Asian and Japanese species none fits, according to the descriptions.

Turning to Australia and Tasmania the only species recorded are *U. incisa* Poir. and *U. urens* L. Though the Papuan plant resembles *U. urens* in habit, it will be shown below more extensively that this is a different species. As to *U. incisa* Poir, this is apparently a good species, allied to *U. dioica* L.

Identification with the recent edition of Allan's Flora of New Zealand easily leads at *U. aspera* Petrie, Trans. New Zeal. Inst. 51 (new issue) (1919) 107, according to the characters given in the key. Unfortunately in the rather concise description several characters which I have found to be of importance in *Urtica* are not mentioned.

Above I have stated that the Papuan plant did not fit either *U. urens* L. or *U. dioica* L., but in studying the Papuan plant in detail, I found that the distinction of *U. urens* and *U. dioica* needed closer study.

In many European floras this distinction is often given in a rather simple way, *U. urens* being characterized as monoecious, branched and annual while *U. dioica* would be dioecious, unbranched, and perennial. These three characters are, however, not completely constant, as in *U. dioica* monoecious plants have been described as a var. *monoica* Tausch ex Čelak. and *U. dioica* may sometimes be branched. Further it is rumoured that in soft winters *U. urens* may sometimes become biennial though never developing a root stock; I could not get pertinent confirmation on this behaviour.

I believe I have found some valuable additional characters and I have drawn

Tabulated survey of characters of four species of *Urtica*

Character	<i>U. dioica</i>	<i>U. urens</i>	<i>U. papuana</i>	<i>U. aspera</i>
1. Root-system	Rhizome	Taproot	Rhizome	Rhizome
2. Leaf-length	1(-3-12-15) cm	1(-4-6) cm	ca. 2 cm	2-7.5 cm
3. Teeth at each side of leaf	12-20	8-10	9-11	9-15
4. Inflorescence	Distinctly branched, lax, axes longer than petiole, visible between the glomerules	Compact, branching and branches indistinct, axes \pm slightly shorter to slightly longer than petiole	Compact, branching and branches indistinct, axes as long as to slightly longer than petiole	Branched, lax, ascending (unripe) axes slightly shorter to longer than petiole; visible between the glomerules
5. Sex	Usually dioecious	Monocious	\pm Monoecious	Dioecious
6. Outside of inner ♀ tepals	Surface strigose-hairy	Only strigose-hairy at margin	Glabrous	Surface strigose-hairy
7. Stinging hairs on inner ♀ tepals	Absent*	1(-2) on one or on both	1(-2) on one or on both	Rarely 1 on one
8. Base of inner ♀ tepals	Narrowed	Auriculate	Narrowed	Auriculate
9. Surface fruitwall	Without minute red dots	With minute red or orange-red dots	Without minute red dots; no intercellular spaces	Without minute red dots; no intercellular spaces
10. Stem	Usually unbranched	Usually branched	Branched	Branched
11. Leaf-base	Cordate, emarginate, rarely rounded	Wide-cuneate, rarely rounded	Wide-cuneate to rounded	Cuneate to emarginate

* An exception must be made for occasional aberrant specimens with very many stinging hairs in which the latter may be present on inner and outer ♀ and ♂ tepals (leg. et det. R. C. Bakhuizen van den Brink Jr.).

these for easy consultation in a tabulated survey in which also the Papuan plant and *U. aspera* from New Zealand are incorporated.

From this survey it appears that there are several more constant details which affirm the specific differentiation between *U. dioica* and *U. urens*, viz. in the inflorescence, the indument on the outer side of the inner tepals of ♀ flowers, the occurrence of stinging hairs on the same, the base of the inner tepals, and the occurrence of peculiar spots containing granules in the epidermis of the achene.

The latter character deserves some comment. These spots appear to be proportionally large intercellular spaces surrounded by more or less radially arranged epidermal cells. In the intercellular space grains are formed attached to the cell walls, which are colourless in immature achenes. As far as I could observe these grains remain uncoloured in *U. dioica*, but become red in *U. urens*. Similar intercellular spaces, and consequently the grains, are absent in the epidermis of the achenes of *U. papuana* and *U. aspera*.

From the table it appears that there are 9 characters by which *U. dioica* and *U. urens* can be differentiated, in addition to 2 others which are not absolutely constant, namely 10 and 11.

The Papuan plant seems in many aspects to be intermediate, agreeing with *U. dioica* in characters 1 and 8, and \pm 5, agreeing with *U. urens* in characters 3, 4, 7, whilst both non-constant characters also would point to *U. urens*. However, in characters 2, 6, and 9 it differs from both *U. dioica* and *U. urens*.

The only characters which *U. aspera* and *U. papuana* have in common are characters 1, 9 and 10, while the tendency in the pubescence of the ♀ tepals is towards *U. dioica*, stinging hairs being only rarely present. The dentation of the leaves is conspicuously different, *U. aspera* having the teeth broadly triangular and acute, while they are narrowly triangular and acuminate in *U. papuana*. Petrie stated that the perianth of the ♂ flowers is glabrous; in the specimens seen they are strigose. Also, I would prefer to call the leaves pergamentaceous instead of sub-coriaceous.

From this, I believe, the only correct conclusion follows that the Papuan plant is a genuine undescribed species.

Urtica papuana Zandee, sp. nov.

Planta monoica, rhizomata, 20–40 cm alta. Folia usque ad c. 2 cm longa, utrinque 9–11-denticulata. Inflorescentia compacta, axibus invisibilis, petiolibus circa aequantibus vel minime superantibus. Tepala interiora glabra, saltem unum 1–2 piles urentes in costa ferentes, basi attenuate. Fructus sine punctis rubris. Typus: *L. J. Brass 9129* in L.

Perennial, erect, monoecious herb with rhizome, 20–40 cm high. Stems branched, sparsely strigose between the stinging hairs, \pm glabrous at base. Leaves with 2, free, narrow, triangular stipules c. 5 mm long; petiole short, up to 6 mm; blade ovate, rarely more than 2 by 1.5 cm, base cuneate to rounded, apex acute, margin serrate (9–11 teeth on each side), above sparsely to moderately strigose between the stinging hairs, dark green in sicco, beneath strigose and with stinging hairs on the veins. *Inflorescences* compact, \pm patent, glomerule-

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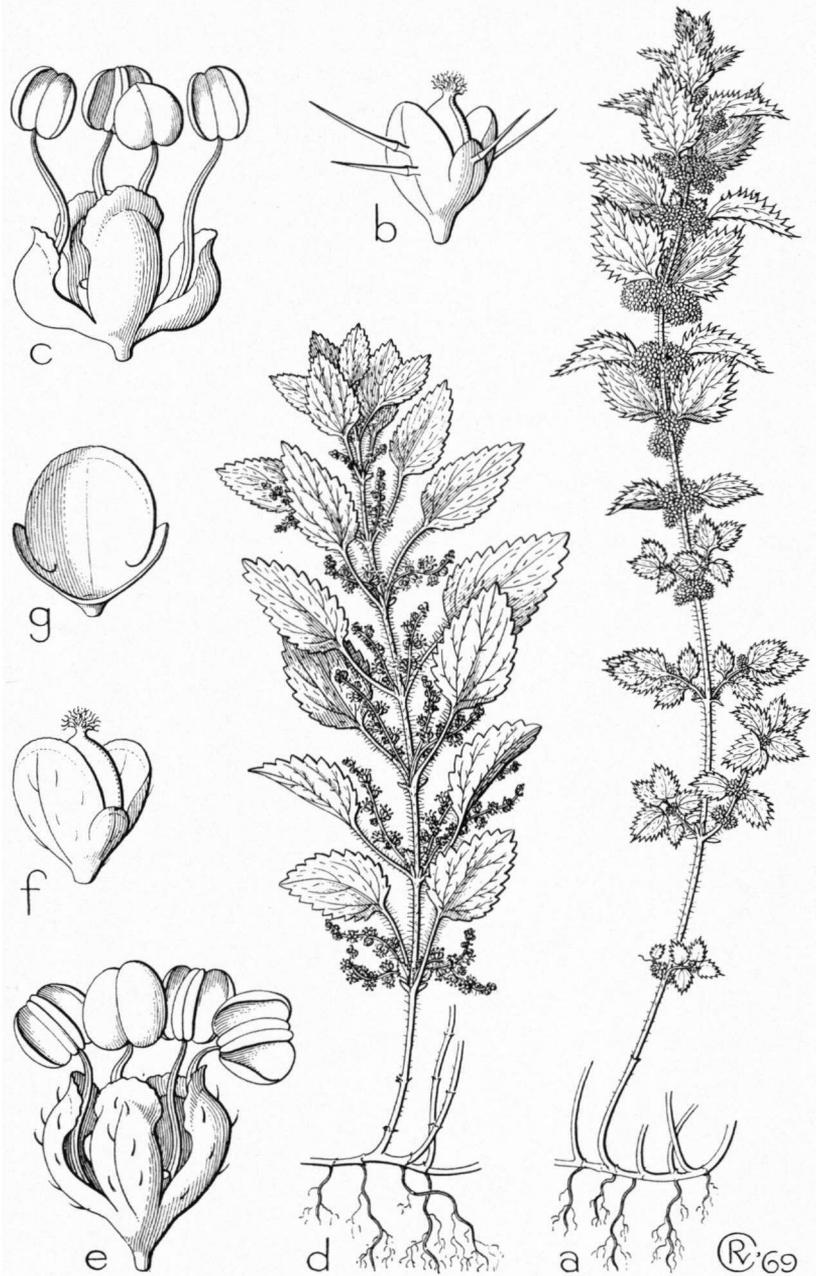


Fig. 1. *Urtica papuana* Zandee. a. Habit, $\times 2/3$, b. female flower, $\times 12$, c. male flower, $\times 12$. - *Urtica aspera* Petrie. d. Habit of male plant, $\times 2/3$, e. male flower, $\times 12$, f. female flower, $\times 12$, g. halved perianth of female flower from inside, $\times 12$ (a-c Brass 9129, d-e G.I. Collett CHR 188733, f-g G.I. Collett CHR 188736).

like, axis hidden by the flowers, usually about as long as to slightly longer than the corresponding petiole; flowers ♀, very few ♂. ♀ *Flower*: Outer tepals elliptic to \pm obovate, c. $3/4$ by $1/3$ mm, base truncate, apex obtuse, entire, glabrous, up to half way connate with the inner. Inner tepals elliptic, c. 1.5 by 1 mm, narrowed to the base, apex obtuse to rounded, entire, with a stinging hair on the midrib of one or both tepals, a second hair may be present, glabrous for the rest. ♂ *Flower*: tepals shortly connate at base, elliptic to obovate, c. $3/4$ by $1/2$ mm, narrowed to base, apex retuse in bud, rounded at anthesis, entire, glabrous, pistillode with style-remnant. *Achene* ovoid, flattened, about as long as the outer tepals, c. $1\frac{1}{2}$ by 1 mm, wall slightly fleshy (? mature), pale yellowish-brown, smooth, without coloured dots, testa \pm red-brown in sicco.

CENTRAL WEST NEW GUINEA. Lake Habbema, 3225 m camp, *L. J. Brass 9129*, Aug. 1938, covering the ground in *Rubus* thickets, an ascending herb 20–40 cm.

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