Lecomte, H. 1914. Le genre *Elytranthe* en Indo-Chine. *Notulae Systematicae (Paris)* 3: 91-99.

THE GENUS ELYTRANTHE IN INDO-CHINA

H. LECOMTE

In his study of the Loranthaceae of Java, Blume [2] established, in the genus *Loranthus* a number of sections according to the characters of the bracts and the flower. The *Elytranthe* and *Macrosolen* sections included *Loranthus*, the flowers of which are provided at the base with one bract and two bracteoles. The first section, with large bracts, included *Loranthus albidus* Bl. and *L. globosus* Roxbg. In the *Macrosolen* section, Blume included *L. formosus* Bl.; *L. evenius* Bl.; *L. spaerocarpus* Bl.; *L. cochinchinensis* Lour.; *L. ampullaceus* Roxbg., etc.

Miquel [3], a little later, elevated these two sections to the rank of genus; but Bentham and HOOKER [4], like Blume, reduced them to the primitive rank of sections.

It must be recognized, however, that the Loranthaceae belonging to these two sections are clearly distinguished from the others by the fact that they have, at the base of the calyx, two more or less fused bracteoles which are placed in opposition to the bract.

It is for this reason which determined Engler [5] to restore the genus *Elytranthe* which would itself include the two sections *Macrosolen* Bl. and *Euelytranthe* Engl.

For van Tieghem [6], the genera *Elytranthe* and *Macrosolen* are part of tribe Elytrantheae comprising no less than 18 genera.

"The Elytrantheae tribe (Van Tieghem, loc. Cit., P. 433) therefore contains all the Loranthoids whose ovary is plurilocular and whose fruit is a berry."

The first character being, in most cases, very difficult to grasp, at least for botanists having only herbarium plants at their disposal, the result is that the tribe is practically characterized by the nature of the fruit, if we adopt van Tieghem's division.

Moreover, it should first of all be noted that it was only by an ingenious interpretation of Treub's research [7] that van Tieghem was led to consider the ovary of Elytrantheae [8] as plurilocular and with virtually axile placentation, whereas Treub, whose great sagacity we know, had not thought it necessary to draw this conclusion from his research, undertaken however, on fresh materials, in excellent condition for the study. This character, invoked by van Tieghem and serving as a basis for a classification of the Loranthaceae, is therefore neither sufficiently established nor, even if it was well founded, of easy enough appreciation to be retained. Until such time as more comprehensive studies have provided unmistakable results, we will therefore leave it aside.

Van Tieghem admitted in 1894 only 3 genera in this tribe: *Macrosolen*, *Elytranthe* and *Lepiostegeres* [9].

But his view soon changed and, a year later, the number of genera of the tribe was 18 [10]. Thus, very different plants such as *Loxanthera* with dorsifix anthers, with other genera with basifixed anthers, Loranthaceae with gamopetalous corollas with others with dialypetalous corollas, Loranthaceae with 4, 5 or 6 corolla parts, and finally some provided with only one bract or at the same time one bract and two bracteoles. Later, van Tieghem even created the Elytranthaceae family. [11]

Understood in this way, this group became unrecognizable and devoid of any homogeneity.

By reproducing the main divisions of van Tieghem, in the Nachträge [12] Professor Engler, who himself was concerned with this family for a long time, did not think it necessary to completely adopt his way of seeing things. He first, with reason, separated the genus *Loxanthera* from it; but he united the other 17 genera of the tribe to form a single genus *Elytranthe*; the 17 genera of van

Tieghem become sections, one of which, *Euelytranthe*, corresponds to the old genus *Elytranthe* of Engler.

We cannot adopt this extension of the genus *Elytranthe*, which brings together very different plants and if from the old genus *Loranthus* we admit the separation of a genus *Elytranthe*, it is at least with well-defined characters. It seems useless to subdivide the genus *Loranthus* if the subdivisions adopted are purely artificial and if they include forms so different from each other that it becomes impossible to link them by a stack of common characters.

We will therefore keep the genus *Elytranthe* as it was first adopted by Engler and corresponding to the *Elytranthe* and *Macrosolen* sections of Blume. It is essentially characterized, in addition to the gamopetalia of the 6-merous corolla, by the presence, at the base of the flower, of a bract and two bracteoles.

But this arrangement is itself only the reduction of a special grouping of flowers by triads, as is found in a great number of species, especially in the Philippines. In the latter case each of the 3 flowers is found in the axil of a single bract. If the central flower existed alone, the bracts corresponding to the lateral flowers would be, with the main bract, at the base of this single flower and would constitute the 2 bracteoles, free or more or less fused together. It is therefore easy to imagine a relationship which must unite the Loranthaceae with flowers provided with one bract and two bracteoles with those which, presenting only one bract per flower, are always found grouped in triads such as: *Loranthus aherneanus* Merr. *L. boholensis* Merr. *L. fragilis* Merr. *L. lucidus* Merr. *L. mindanaensis* Merr.

It is obviously to the same group that we must relate the dialypetalous Loranthaceae, with 6-merous flowers, sometimes 7-merous, and whose sessile flowers are arranged in a sort of cup with prominent edges formed by the intimate fusion of a bract and of 2 bracteoles.

The first species that we are going to describe differs a little from the others by the venation of the leaves and by the absence of longitudinal folds on the corolla. We gave it the name of *E. tricolor*, due to the coloring of the flowers indicated by the traveler Balansa.

Elytranthe tricolor H. Lec.

Caulis teres, nodosus; cortex cinereus tenuiter longitudinaliterque fissus. Folia opposita; limbus obovalis, coriaceus, apice rotundatus, basim versus paulatim attenuatus, 4-6 cm longus, 2-2.5 cm. latus; costa vix conspicua; nervi tenues irregulares vix conspicui, ascendentes; petiolus brevis apice alatus. Flores geminati ad foliorum axillam conferti. Pedunculi breves 0,8-1 mm. longi; bractea 1.5 mm. longa, rotundata; bracteole 2, plus minus connatae. Calyx cylindricus, glaber, 3.5 4 mm. longus, limbo 1 mm. prominente, integerrimo vel 6-subdentato. Corolla cylindrica, tubulosa, apice dilatata, glabra, gamopetala, 3-4.5 cm. longa, tricolor, basi rubra, medio alba, apice subviridis (Balansa); lobi 6, extus reflexi 5-7 mm. longi. Stamina 6, antheris linearibus 1.5-2.75 mm. longis. Ovarium inferum; stylus prismaticus; stigma obscure globosum. Fructus ovoideus, viscosus, brunneofuscus, calycis limbo coronatus.

Stems terete, knobby; bark ash grey with longitudinal fissures. Leaves opposite; limb [blade] obovate, coriaceous, apex rounded, base becoming somewhat attenuate, 4-6 cm long, 2.2.5 cm wide; midrib barely conspicuous; nerves thin, irregular, barely conspicuous, ascending; petiole short, winged at apex. Flowers in pairs crowded in foliar axils. Peduncles short 0.8-1 mm long; bracts 1.5 mm long, rounded; bracteoles 2, more or less connate. Calyx cylindrical, glabrous, 3.5-4 mm long, limb 1 mm prominent, entire or 6-subdentate. Corolla cylindrical, tubular, apex dilated, glabrous, gamopetalous, 3-4.5 cm long, tricolor, base red, middle white, apex greenish (Balansa); lobes 6, reflexing outward 5-7 mm long. Stamens 6,

anthers linear 1.5-2.75 mm long. Ovary inferior; style prismatic; stigma obscurely globose. Fruit ovoid, viscous, brownish-red, crowned by calyx limb.

TONKIN: Ouonbi [Balansa, n° 1027]; Tankeuïn [Id., n° 1026]; Bat-Bac [Id., n° 2321]; Ninh-Thoï [Bon, n° 3321]; Thô Mat [Bon, n^{os} 185, 1843]; Phuc-Nac [Bon, n° 318]; Haïphong: sur un *Nerium Oleander* avec *Loranthus estipitatus* Stapf [Lecomte et Finet sans numéro].

CAMBODGE: Province de Samrong-tong [Pierre, n° 6354].

LAOS Mékong, cataractes de Khong [Thorel sans numéro]; cataractes de Khong et Bassin du Sé-Moun [Harmand, n° 189].

As we can see, this plant does not seem to descend in Cochinchina [southern Vietnam] and it was mainly harvested in Tonkin and on the Mekong.

This species, by the brevity of its bracts and bracteoles, is placed near section *Macrosolen* Bl. It is remarkable for several characters that distinguish it from other species in this section. Indeed, it has obovate leaves whose midrib, barely marked, bears not true secondary veins, but numerous irregularly arranged veins, not very visible and very oblique on the rib. Instead of having stomata on the underside only, as in *E. ampullacea* G. Don, the blade has stomata on both sides and approximately in equal number.

The corolla does not show the longitudinal folds of the above species; it is subcylindrical and simply a little tapering towards the middle of its length. The corolla lobes, 6 in number, are relatively short. The anthers all have a small lateral lobe on either side of the base. The calyx has a very pronounced regular or slightly lobed limb.

However, this plant cannot be separated from the *Elytranthe* of the *Macrosolen* section, because the fruit has the same characters and the embryo is capped by a sleeve of albumen of the same shape, with 6 longitudinal grooves and whose cross section has the shape a 6-tooth gear. But *E. ampullacea* contains in the outer part of the fruit numerous cells with reddish brown contents which are lacking in *E. tricolor* H. Lec.

I had the opportunity to meet myself this plant in a neighboring park of Haïphong (Tonkin) on a *Nerium Oleander*, with another Loranthaceae, *Loranthus estipitatus* Stapf.

The Museum's herbarium received from the Royal Garden of Kew a plant from Australia which presents very marked analogies with our *E. tricolor* H. Lec., but which unfortunately lacks flowers. This plant which bears the name of *Loranthus coronatus* R. Br. Mss. has never been described and I am convinced that it is very similar to the Indo-Chinese plant by the nature of the bark, by the general shape of the leaves, by the presence of stomata on both sides of the blade ; but it presents a slight difference in the venation which does not allow it to be confused with ours.

Van Tieghem, who had created the genus *Amyema* for the Loranthaceae whose 5-merous flowers have flowers arranged in umbels of triads, believed to be able, with doubt however, to relate the plant of R. Brown to his genus *Amyema*, under the name of *A* ? *coronata* R. Br. But if, as we think, the plant of Australia and that of Indo-China belong to the same section of the genus *Elytranthe*, the flower would be provided with a bract and two bracteoles, and moreover the corolla would have 6 lobes, which would separate the plant of the genus *Amyema* of van Tieghem, which has flowers belonging to type 5. While waiting to know the flowers it is therefore appropriate to make a restriction with regard to the assimilation proposed by van Tieghem.

E. AFFINIS Craib in Kew Bull., 1911, p. 454. This species was collected by Kerr (n° 318) in Siam, in the Chien gmai jungle, at 1,140 m. altitude.

We have a plant from Yunnan harvested by Bons d'Anty (n° 337) which appears to be very close to *El. Afinis*, but which is however distinguished by flowers a little smaller and stamens noticeably shorter.

We received from our correspondent Mr. Krempf, attached to the Pasteur Institute of Nhatrang (Annam), another *Elytranthe*, well characterized and by the unusual size of its flowers and by the shape of the leaves, whose blade is rounded at the bottom and whose petiole is very short. This plant can only be placed in the section already comprising *E. tricolor* H. Lec., because the corolla is neither swollen nor folded in its middle part, and moreover, as in *E. tricolor*, the leaf blades have stomata on both sides.

E. Krempfii sp. Nov.

Ramuli subteretes cortice fisso. Folia opposita subcoriacea; limbus ovalis basi rotundatus, apice paulatim attenuatus, obtusus, 7-11 cm longus, 4-6 cm latus, glaber; costa utrinque conspicua; nervi irregulares 8-10 -j .; petiolus brevis, 2.5 mm longus, interdum 3 mm. Flores geminati, fasciculati, axillares; pedunculus 2 mm longus; pedicelli breves vel nulli. Bractea 1, bracteole 2, ovate, glabrous, calyx cylindricus 6-7 mm. longus, ore integerrimo; limbus 3 mm longus. Corolla usque 4.5-7 cm longa, ultra medium 6-alata, apice subclavata, glabra, gamopetala; lobi 6, lineares: Stamina 6; antheris linearibus 5 mm. longis, non transverse locellatis basi cornibus parvis lateralibus instructis. Ovarium adhaerens; stylus prismaticus, stigma vix conspicuum. Fructus non coguitus.

Branches sub-terete with fissured bard. Leaves opposite, subcoriaceous; blade ovate, base rounded, apex somewhat attenuate, obtuse, 7-11 cm long, 4-6 cm wide, glabrous; midrib conspicuous below; nerves irregular 8-10 -j.; petiole short, 2.5 mm long, sometimes 3 mm long. Flowers paired, fasciculate, axillary; peduncle 2 mm long; pedicels short or absent. Bract 1, bracteoles 2, ovate, glabrous, calyx cylindrical, 6-7 mm long, margin entire; limb 3 mm long. Corolla up to 4.5-7 cm long, beyond the middle 6-winged, apex sub-clavate, glabrous, gamopetalous; lobes 6, linear: Stamens 6; anthers linear, 5 mm long, non-transversely loculate, base provided with small lateral horns. Ovary adherent; style prismatic, stigma barely conspicuous. Fruit not known.

ANNAM: Nha-trang [Krempf, n° 139].

The plant collected by Krempf is singularly similar to certain forms of *E. loniceroide*s L. However, it is not possible to include it in this species, for the following reasons: 1° from the point of view of vegetative apparatus, the leaves, although of the same general shape, have a much shorter petiole (2-3 mm instead of 6-8), and the blade is more rounded, even sometimes subcordate on the underside; 2° as regards the flowers it is indisputable that the plant of Nha-trang separates from *E. loniceroides* L. by several characters. The common peduncle is always much shorter and hardly exceeds 2 mm in length; the anthers, 5 mm long instead of 4, narrowed little by little towards the top and not transversely partitioned, whereas they are very clearly so in *E. loniceroides* L., have in addition, at their lower part, a sort of trilobed bead; finally the pollen, always stellate, is larger and with less narrow branches and less deeply separated than in *E. loniceroides* L. [13]. For these various reasons, but mainly for the absence of partitioning in the anthers and for the short length of the petioles, we make the plant of Krempf a new species which comes to be placed in the vicinity of *E. loniceroides* L.

The species *E. Krempfii* H. Lec. closely resembles *E. platyphylla* (King) Gamble; but it is easily distinguished from it by its oval leaves, not oval-rounded or suborbicular.

It therefore constitutes a very distinct species.

E. AMPULLACEA G. Don Gen. II, p. 425; *L. ampulaceus* Roxbg. Fl. Ind. Ed. reprint. fr. Carrey's Edit. p. 302; DC. Prodr. IV, p. 206; J. D. Hook. Fl. Brit. Ind. V, p. 220.

Under the name of *Loranthus cochinchinensis*, Loureiro [14] describes a Loranthaceae developing on the branches of trees in Cochinchina and of which he says that the peduncles are multiflorous and the leaves have an acute blade. The description of the flower leaves no room for doubt as to the generic attribution: “Perianthium inferum, 3-phyllum, minimum. Corolla supera, 1-petala; tubo amplo, hexagono, limbo profunde 6-partito, laciniis lanceolato-linearibus, elastice dehiscentibus, revolutis. Stamina 6. Stylus longior staminibus: stigmate spheroideo. Bacca inter calycem et corollam, luteorubra, coronata: semine 1, ovato, 6-sulcato.”

It is evident that the three-part perianth of which Loureiro speaks corresponds to what we have designated as forming one bract and two bracteoles in the *Elytranthe*. On the other hand, the gamopetalous corolla at the bottom and with 6 lobes in the upper part, the stamens 6 in number, the seed provided with 6 ribs constitute characters of the genus *Elytranthe*. It seems probable to us that the Loureiro plant must be confused with *Elytranthe ampullacea* G. Don.; but there may remain some doubt, the description given by Loureiro not being sufficient, neither for the leaves, nor especially for the size of the fruit.

This species is found in Indo-China in several forms. The typical form exists in Cochinchina, with hairless flowers provided with pedicels not exceeding 3 millimeters.

COCHINCHINE: Thorel, n° 366 [on fruit trees] [Pierre, n^{os} 6353. 6345, 6346]

CAMBODIA without precise locality [Pierre, n° 975].

Var. **puberula**, with pedicels a little longer than the species (3-4 mm.), flowers with calyx and corolla clearly puberulous.

CAMBODIA: island of Phu-quoc [Pierre, 6347 and 6344 on Carapa; Harmand, 904]. Ibid. [Magnen, Gourgand and Chatilon].

Laos: Attopeu [Harmand, 1245, 1299].

Var. **Harmandi**, with narrow leaves (7-9 cm. ×2-3 cm.), Attenuated at both ends, with barely visible secondary veins.

LAOS: Attopeu [Harmand, unnumbered].

CAMBODIA: [Jullien, without number].

Var. **tonkinensis**, with long pedicels (4.5-6 mm.) and non-puberulent flowers.

TONKIN: Tu-Phap [Balansa, 2330. Ibid. 2332 on *Artocarpus integrifolia*].

“Yellow flowers”; Phu-Dien [Good, 52271.

As can be seen from the indications reported above, the species is found in Cochinchina. It presents a variety with puberulous flowers in the south of Cambodia, on the island of Phu-quoc, which can be considered as geographically belonging to Cochinchina. Further north the leaves become narrow in Laos and the plant constitutes the *Harmandii* variety. Finally, in Tonkin, the pedicels are much longer and the flowers always hairless; it is the *tonkinensis* variety.

Because of the variations which the same species can present according to the host on which it is found, it does not seem useful to us, until further information, to consider these different forms other than as varieties.

1. J. VUILLET, loc. cit., p. 100.
2. BLUME, Flora Java, vol. I, Loranthacées.
3. Miquel, Flora von Nederlandsch Indie, pp. 827-832.
4. BENTHAM et HOOKER, Gen. Plant., p. 210, 1883.
5. Pflanzenfamil., II, I, 177
6. Bull. Soc. bot. Fr., 1895, t. XLII, p. 439.
7. M. TREUB, Observ., sur les Loranthacées in Ann. du Jardin de Buitenzorg, vol. II, PP. 54-66, pl. VII-XV. ID., Obs. sur les Loranth., loc. cit., vol. II, pp. 1-13, pl. I, II. ID., Obs. sur les Loranth., loc. cit., vol, III, p. 184, pl. XXVII-XXXIX.
8. V. TIEGHEM, Sur la classification des Loranthacées in Bull. Soc. bot. Fr., 1894, p. 138. ID., Anat. des fleurs et des fruits du Gui, Aun. St. nat., 5e sér., t. XIL, p. 101. ID., Sur la structure de la fleur des *Nuytsia* et *Gaiadendron*, comparie d celle des Loranthacées parasites, in Bull. Soc. bot. Fr., 1893. p. 341.
9. Bull. Soc. bot. Fr., 1894, XLI, p. 143.
10. Bull. Soc. bot. Fr., 1895, XLII, p. 449.
11. V. TIEGHEM, Classification nouvelle des Inovulées in Comptes rendus Acad. des Sciences, 1910, 27 juin).
12. Die naturliche Planzenfam., Nachtr. zum II-IV. p. 124.
13. The two plants, like that of Krempf's *E. loniceroides*, have stomata distributed on both sides of the leaves, a little more numerous, however, on the underside than on the upper face (as 2 is 1 for example).

H. Lec., Not. Syst., T. III, 15 avril 1915.

14. Fl. cochinch., p. 195.