BOTANICAL NOMENCLATURE OF THE U. S. P. IX.*

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A careful examination of the botanical nomenclature of the new revision of the Pharmacopoeia discloses the fact that the authors did not invariably follow either the "Vienna" code or the "American;" but either one or the other as it suited their convenience, and in some instances neither. In most instances where forms of a species, other than the type, are admitted, the trinomial is used; as *Glycyrrhiza glabra glandulifera;* in many cases, however, the "variety" is used as in *Melaleuca Leucadendron* var. *Cajeputi.* The former typifies the American code, which does not recognize the rank of *variety*—the trinomial being the method of designating a *sub-species;* the latter is characteristic of the Vienna system of nomenclature. The system of considering a variation of a species as a subspecies and designating it by a trinomial (the American Code) should be discontinued, as an application of the rule simply makes authors, who do not follow the code and the older authors of a bygone day, express a classification which they had no intention or thought of conveying.

Apparently the American code has been the guiding star of the nomenclatorial committee, but it has balked when a strict application of the rules would have produced a repeating binomial, one where the generic and specific names are the same, as *Zingiber officinale* for *Zingiber Zingiber.* Geographical specific names are decapitalized, a feature that is greatly to be deprecated. Such names are proper names in just the same manner as are specific names derived from old generic names or from the names of persons and they should not be treated differently. Just so long as English type is used to express a binomial, just so long should the rules governing English grammar and syntax be followed. If decapitalization is desired, the binomial should be expressed in Roman type, *i. e.*, in small capitals. There are a good many exceptions to the rule that the name of a family of plants should end in "aceæ," as *Gramineæ, Leguminosæ.* In each instance the ending should be changed to "aceæ" so as not to conflict with the nomenclature of other botanical categories.

The following notes and suggestions may be of service in the preparation of future editions:

Agar.—This article is said to be the dried mucilaginous substance obtained from the *Gracilaria lichenoides* Greville and other algæ of the sea coast of Asia, especially from species of *Gelidium* and of *Gloiopeltis.* It is generally conceded that the agar derived from *Gracilaria lichenoides* is the dried, *unaltered thallus,* and is known to the pharmaceutical and commercial worlds as Ceylon agar. Some species of *Gloiopeltis* yield a glue while others are used as a food. Japanese agar is derived from *Gelidium corneum* (Hudson) Lamour, *G. cartilagineum* Gaillon and perhaps from other species of *Gelidium.* Japanese agar is a gelatinous substance, *gelose,* extracted from the algæ. The commercial agar brought to this country for medicinal purposes comes from Japan and is not an unaltered thallus but an extracted gelatinous substance, and therefore corresponds to the article known as Japanese agar as above described. The definition should be corrected to exclude species of *Gracilaria* and *Gloiopeltis* as sources of origin of agar. The writer of this paper can see no good reason for substituting a class name for this

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alga instead of the family name. "Fam. Gelidiaceæ" should be used instead of "Class Rhodophyceæ."

Amygdala Dulcis, Oleum Amygdalæ Amaræ, Oleum Amygdalæ Expressum.—The sweet almond is said to be derived from *Prunus Amygdalus dulcis* De Candolle and the bitter almond from *Prunus Amygdalus amara* De Candolle. De Candolle is not the author of the above combinations. He did not name them under *Prunus* but under *Amygdalus* and as varieties, not as subspecies; the citation of De Candolle as the author of the combinations is, therefore, without authority. The better way is to keep *Amygdalus* separate from *Prunus*. The bitter almond would then be derived from *Amygdalus communis* Linné and the Sweet, from *Amygdalus communis* Linné var. *dulcis* (Miller) De Candolle. It is not necessary to use the variety *amara* for the bitter almond as it is but a synonym of the species. However, if they are to be retained under *Prunus*, *P. Amygdalus* Stokes is not the proper name for the species under any code of nomenclature now followed, all of which recognize the law of priority. Hudson, in 1778, published a *Prunus communis* to include *P. domestica* Lin., *P. spinosa* Lin., and *P. insititia* Lin., all of which antedate the species of Hudson; consequently Hudson's *P. communis* is but a synonym that can never be reinstated and therefore cannot bar the legitimate use of the name for another species. According to the laws of priority the proper designation of the almonds under *Prunus* is herewith given.

Prunus Communis (Lin.) Farwell (nov. comb.).

Amygdalus communis Lin. Sp. Pl. 473, 1753.

Amygdalus communis Lin. var. amara, D. C. Fl. Fr. IV 486, 1805 and Prod. II, 530, 1825.

Prunus Communis (Lin.) N. Farwell var. Dulcis (Mill.) Farwell (nov. comb.).

Amygdalus dulcis Miller Dict. Ed. 8, No. 2, 1768.

Amygdalus communis Lin. var. *dulcis* D. C. ll. cc.

Aspidium.—The oldest post-Linnæan generic name for the male fern is *Filix* (Fuchs) Hill. The proper combination for the species designated are *Filix Filix-mas* (Lin.) Farwell and *Filix marginalis* (Lin.) Farwell.

Aspidosperma.—The specific name *quebracho blanco* is written as two words, the hyphen being omitted; this doubtless is a typographical error; nevertheless, as written, it becomes a trinomial and, under the American Code, indicates that the drug is derived from a subspecies *blanco* of the species *Aspidosperma Quebracho.*

Aurantii Dulcis Cortex, Oleum Aurantii.—The peel and oil of the sweet orange are said to be derived from the *Citrus Aurantium Sinensis* Gallesio. Just why this name should be attributed to Gallesio is a mystery; Linnæus (Sp. Pl. 783, 1753) was the first to use it and he should be quoted as the author. It might be better to consider this as a distinct species under the name *Citrus Sinensis* (Lin.) Osbeck.

Aurantii Amaræ Cortex.—The bitter orange peel is said to be derived from *Citrus Aurantium amara* (Lin.) Why any varietal or subspecific name should be used is a question that has not been explained. The bitter orange (*Citrus vulgaris* Risso, *Citrus Bigaradia* Loisel, and *Citrus Aurantium amara*) is the exact type of the Linnæan *Citrus Aurantium.* No further designation is necessary.

Cannabis.—Cannabis is said to be derived from *Cannabis sativa* Linné or its

variety *Indica* Lamarck. We have American, Mexican, African, Indian, etc., cannabis; but these are geographical or commercial terms to designate the country of origin. Why it should be necessary does not appear, as the species from one country, when properly prepared, is as active as from another. So we have the pharmaceutical term cannabis sativa variety Indica (not botanical) to designate the Indian grown drug. To quote Lamarck as the author of a botanical variety, *Indica* is absurd; there has never been, in so far as I have been able to ascertain, a properly described botanical variety under the name of *Indica*. Lamarck described a species, *Cannabis Indica*, which was later reduced to synonymy, this form not being given any recognized rank of any degree.

Cardamomi Semen.—The botanical origin is given as *Elettaria Cardamomum* White et Maton. The correct combination and author citation under this genus is *Elettaria Cardamomum* (Lin.) Maton and is based on the *Amomum Cardamomum* Lin. Sp. Pl. 1, 1753. The authors of the Index, Kewensis and K. Schumann in "Das Pflanzenreich" IV, No. 46, p. 238, cite the Linnæan binomial as *Amomum Cardamon* and apply it to the Java cardamom plant. A reference to the Species Plantarum will show that Linnæus did not use the specific name *Cardamom* but wrote *Cardamom*, which is an abbreviation for *Cardamomum* just as *gran. parad.* on the next page (2) is for *Granum-paradisi*. I have not been able to ascertain who was the first author to use the specific name *Cardamon*, but Linnæus certainly did not use it. The genus *Amomum* was founded by Linnæus in 1736 on the small cardamoms of the shops. The ginger was included but no part of the description was drawn from it. It is therefore very doubtful if the name can rightfully be used for any other plant.

Certain elements of three distinct species entered into the make-up of the Linnæan *Amomom Cardamomum*, but the confusion over these species was not original with Linnæus. His description was taken from his earlier Flora Zeylanica, which also is the first reference given after the description in the Species Plantarum. A reference to the Flora Zeylanica develops the fact that this species, as well as the genus *Amomum*, as above shown, was founded on the small cardamoms of the shops. The only correct interpretation of the genus *Amomum* would be to retain it for the plant on which it was founded, hence the proper name for our cardamoms is *Amomum Cardamomum* Lin. The genus to which Roscoe in 1806 transferred the name *Amomum* should probably be known as *Meistera* Giseke (1792).

Caryophyllus, Oleum Caryophylli.—The proper authority for "*Eugenia aromatica* (Linné)" is "Baillon" not "O. Kuntze" as given in the Pharmacopœia. Baillon made the combination in his History of Plants, Vol. VI, pp. 311 and 345, 1877, 14 years ahead of O. Kuntze. But this name is not tenable because of an earlier, valid species of the same name, *Eugenia aromatica* Berg. 1854. The proper name under *Eugenia* is *Eugenia caryophyllata* Thunb. The synonym "Jambosa Caryophyllus (Sprengel) Niedenzu" should be enclosed in marks of parenthesis.

Cinnamomum Zeylanicum.—The proper binomial for this product is *Cinnamomum Cinnamomum* (Linné) Karsten.

Eriodictyon.—The correct authority for "*Eriodictyon Californicum* (Hooker and Arnott)" is "Torrey" not "Greene" as given in the Pharmacopoeia.

Eucalyptol, Eucalyptus, Oleum Eucalypti.—The specific name "Globulus" should not be capitalized; it is not a proper name.

Fœniculum, Oleum Fœniculi.—The correct name for the source of these drugs *is Fœniculum Fœniculum* (Linné) Karsten.

Gelsemium.—The proper authority for the binomial "*Gelsemium sempervirens* (Linné)" is "Persoon" not "Aiton filius," the former having made the combination in 1805, six years ahead of the latter.

Glycyrrhiza.—The designation *Glycrrhiza glabra* Linné is sufficient to indicate the source for Spanish licorice. The custom of making a species and indefinite entity and then giving varietal name to what may be considered the typical form cannot be too severely censured. Nothing is to be gained by it. ("Waldstein et Kitaibel") should be inserted between "*glandulifera*" and "*Regel et Herder*" in order to make the author citation perfect.

Ipecacuanha.—The source of ipecac is given as *Cephælis Ipecacuanha* (Brotero) A. Richard and *Cephælis acuminata* Karsten. The oldest generic name for the ipecacs is *Ouragoga*, published by Linnæus in 1737 in the first edition of the Genera Plantarum, 378, and in Hort. Cliff., 486. Also as a post Linnæan name in December 1774, in a dissertation on *Viola Ipecacuanha* by Daniele Wickman, later appearing in Schreber's edition of the Amœnitates Academicæ in 1785, Vol. VIII, 240, 241, 243. In the index of the first edition of the Genera Plantarum the name was listed as *Uragoga* and in this form was adopted by Baillon and later by O. Kuntze to include not only the ipecacs (*Cephælis*) but also a number of closely allied genera (*Psychotria, Palicourea, Mapouria*, etc.) K. Schumann, in Engler and Prantl's Pflanzenfamilien used the name for the genus *Cephælis* alone, restoring to generic rank those genera that had been reduced by Baillon and by Kuntze. "*Uragoga*," as spelled by these authors, is not a valid post Linnæan name. *Evea* Aublet 1775 has been taken up recently by Standley for *Cephælis*, but this is later by a fraction of a year than *Ouragoga* and therefore is not tenable. The *Uragoga acuminata* (Bentham) OK. is a species of *Psychotria* and does not apply to the Carthagena ipecac. The proper combinations to designate the ipecacs are as herewith given.

Ouragoga Ipecacuanha.—(Brotero) Farwell (nov. comb.).

Callicocca Ipecacuanha.—Brot. Trans. Linn. Soc. VI, 137, pl. 11, 1802.

Ouragoga Acuminata.—Karsten Farwell (nov. comb.).

Cephælis Acuminata.—(Karsten), Deutsche Flora p. 1196, 1880–1883.

Jalapa.—The proper botanical designation for this drug is *Exogonium Jalapa* (Nuttall and Coxe) Baillon. Nuttall was the first author to name the jalap of commerce and medicine; he named it *Ipomœa Jalapa* (Lin.) Pursch, Nuttall's name, if the plant is to remain in *Ipomœa*, as some authors maintain, must give way to next oldest which is *Ipomœa Purga* (Wenderoth) Hayne. If maintained as distinct from *Ipomœa*, as most authors contend, Nuttall's earlier name is available and should be adopted.

Limonis Cortex, Oleum Limonis.—The botanical source of the lemon is *Citrus Medica* Lin. var. *Limon* Lin. This is the oldest name and should be adopted in preference to the later one of Hooker filius; *Citrus Limonia* Osbeck, if as a distinct species.

Maltum.—The botanical source is given as *Hordeum sativum* Jessen. This is but a synonym and should give way to the valid name, *Hordeum vulgare* Lin.

Mentha Viridis, Oleum Menthæ Viridis.—The botanical origin of this drug is said to be *Mentha spicata* Lin. (*M. viridis* Lin.). There seems to be little or no excuse for making *M. viridis* Lin. a synonym of *M. spicata* Lin. or attributing the source of garden spearmint to the latter species. In the Species Plantarum, ed. I, Linnæus had *M. spicata* with three named varieties, *viridis*, *longifolia*, and *rotundifolia*. In the second ed., *M. spicata* with the variety *longifolia*, becomes *M. sylvestris* and the varieties *viridis* and *rotundifolia* are elevated to specific rank under their respective names. *M. spicata* Lin. is, therefore, the older and valid name for the plant that has been more commonly known as *M. sylvestris* and the spearmint of cultivation and of pharmacy is *M. viridis*. *M. spicata* should be dropped.

Myrrha.—Myrrh is said to come from one or more species of *Commiphora*. The oldest name and consequently the valid one is *Balsamea*. It should be adopted.

Oleum Cajuputi.—The botanical source of this oil is said to be *Melaleuca Leucadendron* Linné, especially the variety *Cajuputi* Roxburgh and the variety *minor* Smith. Neither Smith nor Roxburgh are the authors of the varieties mentioned; they published their respective names as specific names. The correct author citation will appear in the synonymy to be given below. The oldest post-Linnæan name for this group of plants is *Kajubuti* Adanson Fam. Pl. II, Index, page 530, 1763. On page 84, vol. 2, Adanson has the generic name *Caju puti* as two distinct words, which, of course, is not tenable as a valid generic name; but on page 530 in the Index he has *Kajubuti* with a reference to *Rumph 2 t. 16* and to page 84, where the description is to be found. The proper binomials are as herewith given.

Kajuputi Leucadendron.—(Lin.) Farwell (nov. comb.).

Myrtus Leucadendra.—Lin. Syst. ed. 10, 1056, 1759.

Kajuputi Leucadendron.—(Lin.) Farwell variety *Angustifolia* (Lin. fil.) Farwell (nov. comb.).

Melaleuca Leucadendron Lin. var. B. *angustifolia* Lin. fil. Suppl. Pl., 342, 1781.

Melaleuca viridiflora Sol. in Gærtn. Fruct. 1, 175 t. 35, 1788.

Kajuputi Leucadendron (Lin.) Farwell variety *Minor* (Sm.) Farwell (nov. comb.).

Melaleuca minor Sm. Rees, Cycl. 23, 1797.

Melaleuca Cajuputi Roxburgh Fl. Ind. III, 394, 1832.

Melaleuca Leucadendron Lin. var. *minor* (Sm.) Duthie in Hk. f. Fl. Brit. Ind. II, 465, 1778.

Melaleuca Leucadendron Lin. variety *Cajeputi* (Roxb.) Niedenzu in Engler and Prantl's Pflanzenfamilien III Teil, 7 abt. 95 and 96, 1892.

The species is founded on the *Arbor alba* Rumph. 2, 72, t. 16, and the second variety on the *Arbor alba minor* Rumph, 2, 76, t. 17 fig. 1. Some authors consider the two varieties named above as identical, in which case the first named would be the valid one as it is the oldest. The second variety is the one that produces the greater part of the commercial cajuput oil.

Oleum Chenopodii.—The source is given as *Chenopodium ambrosioides anthelminticum* Linné. The author citation for the variety *anthelminticum* is (Linné) A. Gray. Linnæus is not the author of a subspecies *anthelminticum*.

Oleum Lavandulæ.—The valid designation of the lavender plant is *Lavandula Spica* Linné, not L. *vera* D. C., which is a later synonym. In any event *L. vera* D. C. is not the name to use; the earliest name, after that of Linnæus', in case his should be discarded for which there is no excuse, is *Lavendula angustifolia*, Miller.

Oleum Pimentæ.—Pimenta Pimenta (Linné) Lyons is the valid binomial for the source of this product; not *B. officinalis* Lindley.

Oleum Sassafras, Sassafras.—Sassafras Sassafras (Linné) Karsten is the proper combination to designate the sassafras.

Oleum Sesami.—The proper binomial to designate the sesame is *Sesamum orientale* Lin.; not *S. Indicum* Lin.

Petroselinum.—Petroselinum hortense Hoffman has precedence over *Petroselinum sativum* Hoffman but the valid binomial is *Petroselinum Petroselinum* (Linné) Karsten.

Sparteinæ Sulphas.—The specific name in *Cytisus scoparius* (Linné) Linké should be decapitalized. It is not an old generic name or a vernacular name, just an adjective.

Taraxacum.—The botanical origin is given as *Taraxacum officinale* Weber. The proper designation under taraxacum is *Taraxacum Taraxacum* (Linné) Karsten. But *Taraxacum* is not the oldest generic name and for that reason is not the valid one. *Leontodon* Lin. was founded in 1737 on the common dandelion, the *Dens Leonis* of the older botanists. As the genus appeared in the first edition of the Species Plantarum, it must be accepted for the species on which it was founded, the dandelion, which is *Leontodon Taraxacum* Linné. The genus generally known as *Leontodon* of late years is *Virea* Adanson.

Ulmus.—The source of origin is given as *Ulmus fulva* Mx. "*Ulmus pubescens* Walter" is generally considered to apply to the same species. and being the older name by 15 years should be adopted.

Xanthoxylum.—The proper spelling for this generic name is *Zanthoxylum.* Linnæus used Z for the initial letter, but Miller changed it to X. The original spelling should be restored.

Zingiber.—The source of origin is given as *Zingiber officinale* Roscoe. The proper appellation is *Zingiber Zingiber* (Linné) Karsten.

In order to bring about a uniformity in family nomenclature, each name ending in "aceæ" and the oldest family name being used, the following changes are necessary:

Gramineæ	to	Graminaceæ	Ternstrœmiaceæ	to	Camelliaceæ
Palmæ	to	Palmaceæ	Guttiferæ	to	Hypericaceæ
Fagaceæ	to	Castaneaceæ	Punicaceæ	to	Granataceæ
Moraceæ	to	Lupulaceæ	Umbelliferæ	to	Umbellataceæ
Polygonaceæ	to	Persicariaceæ	Oleaceæ	to	Jasminaceæ
Chenopodiaceæ	to	Blitaceæ	Loganiaceæ	to	Strychnaceæ
Cruciferæ	to	Cruciferaceæ	Hydrophyllaceæ	to	Hydroleaceæ
Leguminosæ	to	Leguminaceæ	Labiatæ	to	Labiataceæ
Euphorbiaceæ	to	Tithymalaceæ	Rubiaceæ	to	Aparinaceæ
Rhamnaceæ	to	Zizyphaceæ	Cucurbitaceæ	to	Bryoniaceæ
Sterculiaceæ	to	Cacaoaceæ	Compositæ	to	Compositaceæ