

Knapp, E.

1713.

BIBLIOGRAPHY OF SPECIES OF

Xanthoxylum.

XANTHOXYLUM

Amesitates, pp. 898-899, *Pharm. Jour.*, 13, p. 483.

Gives a description and the use of the leaves of *X. fraxinum*; also a plate of the leaves and berries.

By

Clasen, E.

Edward William Clasen

1753.

Xanthoxylum.

Species Plantarum, 1 ed., v. 1, p. 270; (U.S. Dispens., 17 ed., p. 1461; U.S. Dispens 19 ed., p. 1346; Nat. Dispens., 5 ed., p. 1715; King's Am. Dispens., v. 2, 18 ed., p. 2087; *Am. Jour. Pharm.*, 68, p. 322; *Proc. Am. Pharm. Assoc.*, 11, p. 61; *Pharm. Jour.*, 22, p. 400; *Flora Borl.-Am.*, v. 2, p. 242; *Sp. Plant.*, v. 4, p. 757).

Gives the botanical name, the botanical description, and habitat of *X. Clava-herculis* and *X. trifolium*.

Miller, P.

1766.

(*Xanthoxylum*) A Thesis Submitted for the Degree of

BACHELOR OF SCIENCE

Gardner's Dictionary (U.S. Dispens., 17 ed., p. 1461; 19 ed., p. 1346; Nat. Dispens., 5 ed., p. 1715; King's Am. Dispens., v. 2, 18 ed., p. 2087; *Am. Jour. Pharm.*, 68, p. 321; *Pharm. Jour.*, 22, p. 400.)

Pharmacy Course

(The original was not available).

Marshall, E.

1785.

Xanthoxylum.

American Grove, p. 166; (U.S. Dispens., 19 ed., p. 1346; *ibid.*, 5 ed., p. 979; *ibid.*, 8 ed., p. 871; King's Dispens., 18 ed., p. 2087; *Am. Jour. Pharm.*, 68, p. 321; *Flora of N. Am.* v. 1, p. 214)

University of Wisconsin

Gives a botanical description of each variety Northern & Southern and also their medicinal uses.

1928

Kaempfero, E.

1712.

Seo & Sanfio.

Amoenitates, pp. 892-895; Pharm. Jour., 13, p. 423.

Gives a description and the use of the leaves of X. fraxineum; also a plate of the leaves and berries.

Linne, C.

1753.

Zanthoxylum.

Species Plantarum, 1 ed., v. 1, p. 270; (U.S. Dispens., 17 ed., p. 1461; U.S. Dispens 19 ed., p. 1346; Nat. Dispens., 5 ed., p. 1715; King's Am. Dispens., v. 2, 18 ed., p. 2087; Am. Jour. Pharm., 62, p. 322; Proc. Am. Pharm. Assoc., 11, p. 81; Pharm. Journ. 22, p. 400; Flora Bor.-Am., v. 2, p. 235; Sp. Plant., v. 4, p. 757).

Gives the botanical name, the botanical description, and habitat of Z. Clava-herculis and Z. trifolium.

Miller, P.

1768.

(Xanthoxylum americanum).

Gardner's Dictionary, 8 ed., No. 2, p. ; (U.S. Dispens., 17 ed., p. 1461; ibid., 19 ed., p. 1346; Nat. Dispens., 5 ed. p. 1715; King's Am. Dispens., 6 ed., p. 979; ibid., 8 ed., p. 871; ibid., 18 ed., v. 2, p. 2087; Am. Jour. Pharm., 62, p. 321; Pharm. Jour., 22, p. 400.)

(The original was not available).

Marshall, H.

1785.

Xanthoxylum.

American Grove, p. 166; (U.S. Dispens., 19 ed., p. 1346; ibid., 6 ed., p. 979; ibid., 8 ed., p. 871; King's Dispens., 18 ed., p. 2087; Am. Jour. Pharm., 62, p. 321; Flora of N. Am. v. 1, p. 214.)

Gives a botanical description of each variety Northern & Southern and also their classification.

Gives several accounts of the value of the drug as an antiseptic in ulcer cases and in the relief of dry belly-

Lamarck, J.B.P.A. de M.

1786.

(*Xanthoxylum Clava-Herculis*).

Encyclopedie methodique Botan. (Dict.), 2, p. 38; (King's Am. Dispens., v. 2, 18 ed., p. 2087; *ibid.*, v. 2, 19 ed., p. 2087; U.S. Dispens., 17 ed., p. 1461; *ibid.*, 19 ed., p. 1346; Am. Jour. Pharm., 62, p. 321, 177; *ibid.*, 91, p. 107; Pharm. Jour. 22, p. 400.)

(The original was not available).

Schoepf, D.

1787.

Zanthoxylum.

Materia Medica Americana, p. 148; Lloyd Libr. Reprod. Ser. No. 3, p. 148; Am. Jour. Pharm., 62, p. 322.)

Gives the synonyms, habitat, physical properties, uses and family.

Gaertner, J.

1788.

(*Xanthoxylum cariboeum*).

De Fruct. et Sem., vol. 1, p. 333, tab. 68, fig. 8; (Pharm. Jour., 22, p. 403).

The original was not available.

Walter, T.

1788.

(*Xanthoxylum fraxini folium*).

Flora Carolinianum, ; (U.S. Dispens., 19 ed., p. 1346; King's Am. Dispens., v. 2, 18 ed., p. 2087; Am. Jour. Pharm., 62, p. 322; *ibid.*, 91, p. 107).

Gives its botanical classification.

Heney, T.

1792.

On the Efficacy of *Zanthoxylon*.

Mem. M. Soc. Lond., 5, p. 44. (Surg. Gen. Libr. Ind. S. 1, v. 16, p. 271.)

Gives several accounts of the values of the drug as an antiseptic in ulcer cases and in the relief of dry belly-

ache. Jour., 22, p. 400; N. Am. Sylva, v. 5, p. 78; Fl. Bor.-Am., v. 2, p. 235; Linnæ Sp. Plant., v. 4, p. 757.)

Harris, J. 1793.

Case of Haematocele, with an Account of the Efficacy of the Xanthoxylon.

Mem. M. Soc. Lond., 5, p. 37; (Surg. Gen. Libr. Ind. S. 1, v. 16, p. 721.)

On account of the pleasing antiseptic value of this drug.

Willdenow, C.L. 1796.

(Xanthoxylum).

Berlinische Baumzucht, p. 413. (Sp.Plant., v. 4, p. 757.)

(The original was not available).

Chamberlaine, W. 1799.

Xanthoxylum.

Mem. M. Soc. Lond., 5, p. 40.

Gives a description of the drug and the healing and antiseptic value of powdered Xanthoxylum for ulcers.

Ballamy, G. 1802.

(Observations on the Zanthoxylon).

Med. & Phys. Jour., 8, p. 453; (Surg. Gen. Lib. Ind., S.1, v. 16, p. 721.)

The original was not available.

Michaux, A. 1803.

Zanthoxylum.

Fl. Bor.-Am., v. 2, p. 235; (U.S. Dispens., 19 ed., p. 1346; King's Am. Dispens., v. 2, 18 ed., p. 2087; ibid., 8 ed., p. 871; ibid., 6 ed., p. 979; Am. Jour. Pharm., 62, p. 321;

Pharm. Jour., 22, p. 400; N. Am. Sylva, v. 5, p. 78; Fl. N. Am., v. 1, p. 214; Linne Sp. Plant., v. 4, p. 757.)

Gives the difference between the masculine and feminine drug and a description, habitats and synonyms of Z. Rami-florum and Z. Tricarpum.

Willdenow, C.L.

(1805).

Xanthoxylum fraxineum.

Linne's Species plantarum, v. 4, p. 757; (U.S. Dispens., 2 ed., p. 697; ibid., 3 ed., p. 680; ibid., 4 ed., p. 713; ibid., 5 ed., p. 745; ibid., 10 ed., p. 759; ibid., 12 ed., p. 864; ibid., 13 ed., p. 900; ibid., 17 ed., p. 1461; ibid., 19 ed., p. 1346; Nat. Dispens., 5 ed., p. 1715; King's Am. Dispens., v. 2, 18 ed., p. 2087; Compan. to U.S.P. 1884, p. 1025; Am. Jour. Pharm., 62, p. 321; Pharm. Jour. 22, p. 400.)

Gives a description, synonyms and habitat of the drug.

Coxe, J.R.

1806.

Xanthoxylum Clava Herculis.

Am. Dispens., 1 ed., p. 719; ibid., 4 ed., p. 629.

Gives the uses of Xanthoxylum.

(Comm.)

1808.

Xanthoxylum Clava herculis.

Toothach tree. The bark and seed vessels. Mass. Med. Soc., Pharm., p. 35.

The above is the full text on Xanthoxylum.

Thacher, J.

1813.

Xanthoxylum Clava Herculis.

Am. New Dispens., 2 ed., p. 369; ibid., 4 ed., p. 413.

Gives the habitat, uses of two species of Xanthoxylum.

Pursh, F. 1814.

Zanthoxylum.

Pursh's fl. of N. Am., v. 1, p. 210; (Tor. & Gray's Flora of N. Am., v. 1, p. 214).

Gives the botanical description, synonyms and habitat of *Z. fraxineum* and *Z. tricarpon*.

Rees, A. 1819.

Xanthoxylum.

Rees's Cyclop., v. 39, p. 6; (Pharm. Jour., 22, p. 400.)

Gives the history, botanical description and a distinguishing description for fourteen species of *Xanthoxylum*.

Rees, A. 1819.

Zanthoxylum.

Rees's Cyclop., v. 39, under *Zanthoxylum*.

Gives synonyms and method of culture of the drug.

Virey, J. 1820.

D'une ecorce, jaune, nommee Cascanoqui, servant a la teinture.

Jour. de Pharm. et de Chim., 12, p. 88; (Am. Jour. Pharm., 62, p. 324).

Comments on the history and habitat of *xanthoxylum*.

Bigelow, J. 1821.

Xanthoxylum Fraxineum.

Am. Med. Bot., 3, p. 156; (U.S. Dispens., 2 ed., p. 697; *ibid.*, 3 ed., p. 680; *ibid.*, 4 ed., p. 713; *ibid.*, 5 ed., p. 745; *ibid.*, 10 ed., p. 759; *ibid.*, 12 ed., p. 864; *ibid.*, 13 ed., p. 900; *ibid.*, 17 ed., p. 1461; King's Am. Dispens., 18 ed., v. 2, p. 2087; Pharm. Jour. 22, p. 400.)

Gives its habitat as the Northern, Middle & Western States. Its late botanical classification seems to be in Pentandria Pentagynia. The acrimony being separated by decoction seems to be mostly in the bark.

It is used as a remedy with a good deal of reputation in chronic rheumatism. The resemblance of Xanthoxylum Clava Herculis and ambiguity of Aralia spinosa confounded with the Xanthoxylum is also given.

Decandolle, A.P. 1824.

Zanthoxylum.

Prodromus, v. 1, p. 725; (Am. Jour. Pharm., 62, pp. 177 & 322; Pharm. Jour., 22, p. 400; Proc. Am. Pharm. Assoc., 6, p. 63; Fl. of N. Am., v. 1, p. 214; N. Am. Sylva, v. 5, p. 78.)

Gives the general characteristics of the family and then a detail description of 43 species of the drug.

Elliott, S. 1824.

Zanthoxylum.

Botany of S. Carolina & Georgia, v. 2, p. 690; (Fl. of N. Am., v. 1, p. 214).

Gives the classification and a description, synonym and habitat of two species of the drug.

Coxe, J.R. 1825.

Zanthoxylum Clava Herculis.

Am. Dispens., 6 ed., p. 640.

Gives the synonyms, uses, description and administering of xanthoxylum.

Its use for a "dry belly ache" was discovered by watching a female slave collect it and administer it to a negro suffering under that colic. In the West Indies a decoction is used with great success.

Chevallier, M. & Pelletan, G.

1826.

Sur le Xanthoxylum des Caraibes.

Jour. de Chimie Med., 2, p. 314; (Pharm. Journ., 22, p. 403; U.S. Dispens., 12 ed., p. 865; *ibid.*, 13 ed., p. 900; *ibid.*, 17 ed., p. 1462; *ibid.*, 19 ed., p. 1347; Nat. Dispens., 2 ed., p. 1536; *ibid.*, 3 ed., p. 1621; *ibid.*, 5 ed., p. 1716; King's Am. Disp., 18 ed., v. 2, p. 2089; Am. Jour. Pharm., 8, p. 196; *ibid.*, 35, p. 459; *ibid.*, 62, p. 323.)

He gives a description, chemical properties and uses as astringent, gonorrhoea of the drug.

Coxe, J.R.

1827.

Zanthoxylum Clava Herculis.

Am. Dispens., 7 ed., p. 659.

Gives the uses of Zanthoxylum and discusses the two varieties of prickly ash.

Prout, W.

1827.

Xanthoxylum Fraxineum.

Eclectic and General Dispens., v. 1, pp. 299 & 592.

Gives a synonym, medical properties and uses of the above plant.

Rafinesque, C.S.

1828.

Xanthoxylon Fraxineum.

Medical Flora, v. 2, p. 113. (U.S. Dispens., 19 ed., p. 1346; King's Am. Dispens., v. 2, 18 ed., p. 2087; Am. Jour. Pharm., 62, p. 362.)

Gives the synonyms, classification, genus, species, description, history and properties; also a plate of the leaves and stem.

Staples, E.

1829.

Xanthoxylum Fraxineum.

/Am. Jour. Pharm., 1, p. 163; (King's Am. Dispens., 18 ed.,

v. 2, p. 2089; *ibid.*, 8 ed., v. 2, p. 871; *ibid.*, 6 ed., p. 979; U.S. Dispens., 2 ed., p. 698; *ibid.*, 3 ed., p. 680; *ibid.*, 4 ed., p. 713; *ibid.*, 5 ed., p. 745; *ibid.*, 10 ed., p. 759; *ibid.*, 12 ed., p. 864; *ibid.*, 13 ed., p. 901; *ibid.*, 19 ed., p. 1347; Nat. Dispens., 2 ed., p. 1536; *ibid.*, 3 ed., p. 1621; *ibid.*, 5 ed., p. 1716; Am. Jour. Pharm., 8, p. 196; *ibid.*, 62, p. 229; Pharm. Jour., 22, p. 402; Jour. Phila. Coll. Pharm., 1, p. 165.)

Gives the habitat, botanical classification, description of leaves, flowers etc. Medical properties resemble those of mezereon for chronic rheumatism.

Kunth, K.S. (1833-1843).

(Xanthoxyleae). General description of six species of

Enumer. plantarum, etc., v. , p. ; (Pharm. Jour., 22, p. 400.)

The genus Xanthoxylum is placed in the Pteleaceae family.

Wood, G.B. & Bache, F. 1834.

Xanthoxylum, U.S. Secondary Prickly Ash.

U.S. Dispens., 2 ed., p. 697; *ibid.*, 3 ed., p. 680; *ibid.*, 4 ed., p. 713; *ibid.*, 5 ed., p. 745; *ibid.*, 10 ed., p. 759; 12 ed., p. 864; *ibid.*, 13 ed., p. 900; (Pharm. Jour. 22, p. 402).

Gives the U.S.P. definition, allied species, order, general chemistry, general characteristics, habitat, medical properties and uses of prickly ash.

Spach, M.E. 1834.

Les Zanthoxylees. The list of all the species of Xanthoxylon

Histoire Naturelle des Vegetaux, 2, p. 365; (Am. Jour. Pharm., 62, p. 324.)

Gives a general description of the Zanthoxyleae; a detailed description, synonyms, uses and habitat of each species.

Griffith, R.E. 1836.

Xanthoxylon. Description of the different species of Xanthoxy-

Am. Jour. Pharm., 8, p. 195; (Ibid., 62, p. 229.)

Gives the four species found in United States, description, varieties, uses. States the principle discovered by Chevallier, which they call Xanthopicrite, appears identical with the principle Xanthoxyline, detected by Dr. Staples.

Lindley, J.

1838.

Xanthoxylon.

Flora Medica, 215; (Am. Jour. Pharm., 62, p. 325; Pharm. Jour., 22, p. 400.)

Gives a botanical description of six species of Xanthoxylon.

Torrey, J. & Gray, A.

1838.

Xanthoxylum.

Flora of N. Am., v. 1, p. 214. (U.S. Dispens., 12 ed., p. 864; *ibid.*, 13 ed., p. 214; *ibid.*, 17 ed., p. 1461; *ibid.*, 19 ed., p. 1346; Pharm. Jour., ser. 3, v. 4, p. 400.)

Gives a botanical description of the family and also a very detailed description of *Z. Americanum* and *Z. Carolinianum*.

Jackson, B.D.

1845.

Xanthoxylum.

Index Kewensis, v. 4, p. 1246; (U.S. Dispens., 19 ed., p. 1346).

Gives a complete list of all the species of Xanthoxylon and their habitats.

Griffith, R.E.

1847.

Xanthoxylon.

Med. Bot., p. 195. (Pharm. Jour., 22, p. 404).

Gives a description of the different species of Xanthoxy-

lon, their medical properties and the substances found as analyzed by Dr. Staples.

Gray, A.

1849.

Xanthoxylum.

Genera of the plants of the U.S., 2, p. 147; (Am. Jour. Pharm., 62, p. 322; Pharm. Jour., 22, p. 400.)

Gives a botanical description of the drug and also one plate.

Wright, R. and Arnott, G.A.W.

1850.

Xanthoxylum.

Illustrations of Indian Botany, p. 165, t. 66; (Pharm. Jour. 22, p. 401).

(The original was not available).

Stenhouse, J.

1853.

Xanthoxyline.

Pharm. Jour., 13, p. 423; (Ibid., 17, p. 19; Am. Jour. Pharm. 29, p. 445; Proc. Am. Pharm. Assoc., 6, p. 58; U.S. Dispens., 12 ed., p. 864; ibid., 13 ed., p. 900; Nat. Dispens., 2 ed., p. 1536; ibid., 3 ed., p. 1621; ibid., 5 ed., p. 1717; Pharm. Jour., 20, p. 554).

Description of X. piperitum also the method of extracting the alkaloid. He also gives a figure and detail description of the crystals of Xanthoxyline and in addition a few chemical properties.

(Am. Chem. Inst.)

1855.

Xanthoxylin.

Positive Medical Agents, p. 202.

Xanthoxylin is the active principle of Xanthoxylum. It is used for chronic rheumatism, atonic conditions of the stomach and nervous system.

King, J. the botanical description and habitat of 1856.
I. *Xanthoxylum*, 2. *Floridanum* and 3. *Pterota*.
(Prickly Ash Berries).

College Journal, 1, p. 86; (King's Am. Dispens., 18 ed.,
v. 2, p. 2090).

Comments on the history and use of the prickly ash
berries.

Nuttall, T. 1857.

Prickly Ash or Tooth-ache Tree.

North Am. Sylva, v. 5, p. 77; (Am. Jour. Pharm., 62, p.
322.)

Gives the natural order and family; descriptions,
synonyms, habitats and use of Carolina Prickly-Ash, Long
leaved Prickly-Ash, Bastard Iron-Wood, Walnut-leaved
Yellow-wood and Florida Satin-wood with plates of each.

Coe, G. 1858.

(*Xanthoxylum*).

Concentrated Organic Medicines, 1 ed., p. 380; (Pharm. Jour.
22, p. 405.)

The original reference was not available.

Parrish, E. 1859.

Xanthoxylum.

Practical Pharm., 2 ed., p. 421; (Pharm. Jour., ser. 2, v.
4, p. 403).

It states Xanthoxyllin is obtained from *Xanthoxylum* and
is similar to berberine.

Chapman, A.W. 1860.

Xanthoxylum.

Flora of the Southern United States, 2 ed., p. 66; (U.S.
Dispens., 17 ed., p. 1462; Am. Jour. Pharm., 62, p. 322.)

Gives the botanical description and habitat of the X. Carolinianum, X. Floridanum and X. Pterota.

Hanbury, D. 1861.

Notes on Chinese Materia Medica.

Pharm. Jour., 20, p. 553.

Gives the Chinese names for Z. piperitum and Z. alatum. Gives a description of the fruits and the habitat of the drug, also a few properties.

Lee, C.A. 1861.

Xanthoxylum Fraxineum.

Chem. & Drugg., 2, p. 181.

Gives the synonyms, botany, chemistry, medical properties, preparations and doses.

Bentley, R. 1862.

Xanthoxylon Fraxineum-Prickly Ash.

Pharm. Jour., 22, p. 399; (Proc. Am. Pharm. Assoc., 11, p. 81; U.S. Dispens., 12 ed., p. 865; ibid., 13 ed., p. 901.)

Gives its early and present history, synonyms, etymology, botany, general character, specific character, habitat, collection of fruit and bark, uses, general characteristics, composition, chemical characteristics, adulteration, substitution, medicinal properties, uses, administration, preparation and remarks on preparations.

(Jussieu, __.) 1863.

Xanthoxylum Fraxineum.

Lancet, 1863, 1, p. 128. (Pharm. Jour., 22, p. 400.)

Gives the description and use of the bark. The administering of both the drug and the xanthoxylin with different effects.

Perrins, J.D. Pharmacology, 3, p. 668; (Pharm. Jour. 1863.

(Xanthoxylaceae).

Jour. Chem. Soc., 15, p. 339; (Pharm. Jour. 22, p. 494; Proc. Am. Pharm. Assoc., 11, p. 81; Am. Jour. Pharm., 35, p. 459; *ibid.*, 62, p. 323; U.S. Dispens. 12 ed., p. 864; *ibid.*, 13 ed., p. 901; *ibid.*, 17 ed., p. 1462; *ibid.*, 19 ed., p. 1347; Nat. Dispens., 2 ed., pp. 285 and 1536; *ibid.*, 3 ed., p. 1621; *ibid.*, 5 ed., p. 1716; King's Am. Dispens., 18 ed., v. 2, p. 2089.)

Shows that Xanthropicrite is berberina. complete list of reactions; also a botanical description of Xanthoxylum.

Bridges, R. 1864.

On Southern Prickly Ash.

Proc. Am. Pharm. Assoc., 12, p. 270; (U.S. Dispens., 17 ed., p. 1462; *ibid.*, 19 ed., p. 1347; Am. Jour. Pharm., 62, p. 324).

A comparison of the specimens collected and their relationship to northern prickly ash. on subside the gripping pains

Grisebach, A.H. 1864.

Zanthoxylum.

Flora of the British West Indian Islands, p. 138; (Am. Jour. Pharm., 62, p. 322.)

Gives a complete botanical description of Z. Clava-Herculis, Z. Microcarpum, Z. Aromaticum and Z. Ochroxylum. as a general stimulant

King, J. 1864.

Xanthoxylum Fraxineum - Prickly Ash.

Am. Dispens., 6 ed., p. 979; *ibid.*, 8 ed., p. 871; *ibid.*, 10 ed., p. 871.

Gives the order, description, history, property and uses and preparations of Xanthoxylum. Used in China,

Wood, G.B. 1868.

Prickly Ash.

Therapeutics and Pharmacology, 2, p. 668; (Pharm. Jour., 22, p. 405.)

Gives the use and dose of Xanthoxylum.

Guibourt, N.J.

1869.

Ecorce de Clavalier Jaune.

Histoire Naturelle des Drogues Simples, v. 3, p. 557.

Gives the physical properties and a very complete list of reactions; also a botanical description of Xanthoxylum.

Potter, S.H.

1870.

Prickly Ash for Cholera Infantum.

Elec. Med. Jour., 30, p. 398.

Gives the causes, symptoms and treatment of Cholera Morbus. Repeated doses of Ipecac are first given followed by medium doses of prickly ash which subside the gripping pains and spasms. The same treatment is used for Cholera Infantum.

Scudder, J.M.

1870.

Xanthoxylum Fraxineum.

Elec. Med. Jour., 30, p. 543.

Prepare a tincture of the berries, viij to alcohol 98°Oj. Dose from a fraction of a drop to 5 drops. As a stimulant to mucous tissues it has no equal but as a general stimulant there are many others preferred.

Dragendorff, G.

1872.

Ueber einige in Turkestan gebräuchliche Heilmittel.

N. Rep. Pharm., 21, p. 544. (Proc. Am. Pharm. Assoc., 21, p. 256.)

The fruit is used for unpleasant odors. Used in China, Japan and Arabia as a stimulant to the stomach and liver.

Hooker, J.D.

1873.

Zanthoxyleae. *Phyllium.*

System of Bot., p. 323. (*Proc. Am. Pharm. Assoc.*, 25, p. 187.)

Gives a description of the drug, drawings of several species, habitat and other remarks. *is tripartit., a description of the fruit is given; it is an agreeable aromatic and stimulant.*

Mickely, __. 1874.

(Des Proprietes de l'ecorce du Zanthoxilum sorbifolium).

Rev. med. franc. et e trang., 1, p. 228; (*Surg. Gen. Libr. Ind.*, s. 1, v. 16, p. 271.)

The original was not available.

Peckolt, T. 1875.

Arruda do matto.

Zeitschr. Oest. Ap. Ver., 13, p. 418; (*Proc. Am. Pharm. Assoc.*, 24, p. 165.)

Gives a description of the plant, the medicinal properties of the ripened fruit and tests of the oil which was expressed.

Schoer, E. 1875.

Xanthoxylon piperitum and Fagara piperitum.

Pharm. Zentralh., 16, p. 203; (*Am. Jour. Pharm.*, 56, p. 622).

Gives its use in Japan and its relationship to our species.

Browne, H. L. 1876.

(A Case of Poisoning by Pellitory.)

Practitioner, 17, p. 86; (*Surg. Gen. Libr. Ind. s. 1, v. 16, p. 721.*)

(The original was not available).

Dymock, W.

1876.

Zanthoxylon Triphyllum.

Pharm. Jour., 36, p. 492. (Proc. Am. Pharm. Assoc., 25, p. 180.)

States that its Indian local name is Triphali, a description of the fruit is given; it is an agreeable aromatic and stimulant.

Lloyd, J.U.

1876.

Crystals from Prickly Ash.

Am. Jour. Pharm., 48, p. 226; (U.S. Dispens., 17 ed., p. 1462; ibid., 19 ed., p. 1347; Nat. Dispens., 3 ed., p. 1621; ibid., 5 ed., p. 1716; Am. Jour. Pharm. 58, p. 417; ibid., 62, p. 231; Pharm. Jour., 35, p. 973.)

States that crystalline substance found in Xanthoxylum fraxineum has never been experimented with as a medicine. Gives in detail its chemical properties and many reactions.

Witte, O.

1876.

(Ueber die Rinde von Xanthoxylum fraxinum.)

Thesis at Gottinger; (Surg. Gen. Libr. Ind., s. 1, v. 16, p. 721.)

The original was not available.

Dymock, W.

1877.

Xanthoxylon Rhetsa.

Pharm. Jour., 36, p. 730; (Proc. Am. Pharm. Assoc., 25, p. 180; New Remedies 6, p. 113.)

States that the Indian name for Xanthoxylon Rhetsa is Chirphul; also that its capsules are larger than those of Z. triphyllum. The root is used as a purgative and is yellow in color.

Am. Jour. Pharm., 52, p. 191. (U.S. Dispens., 17 ed., p. 1462; ibid., 19 ed., p. 1347; Nat. Dispens., 3 ed., p. 1621; ibid.,

Witte, —. 1877.

(Xanthoxylum).

Jahresb. des Pharm., 1877, p. 178; (King's Am. Dispens., v. 2, 18 ed., p. 2089).

(The original was not available).

Mendez Estrada, F. 1879.

(Estudio sobre la corteza del Zanthoxylum pentanome).

Thesis; (Surg. Gen. Libr. Ind., s. 2, v. 21, p. 370).

The original was not available.

Stille, A. & Maisch, J. 1879.

Xanthoxylum, U.S. - Prickly Ash.

Nat. Dispens., 2 ed., pp. 285 & 1535; ibid., 3 ed., p. 1620.

(P. 285) An account of the discovery of berberine in the bark of Xanthoxylum (p. 1535). Gives the species, order, origin, habitat, description, substitutions, allied species, constituents, medical action and uses of Xanthoxylum.

1879.

Zanthoxylum Alatum.

Pharm. Jour., 38, p. 1053.

Gives a description of Zanthoxylum alatum in flower. This and Z. piperitum are used in China as a stimulant, emenagogue and anthelmintic remedy. A description of the fruit and seeds are given, also the method of distributing its seeds by shooting them out. The leaves are largely used for feeding silkworms.

Colton, G.H. 1880.

Xanthoxylum Carolinianum.

Am. Jour. Pharm., 52, p. 191. (U.S. Dispens., 17 ed., p. 1462; ibid., 19 ed., p. 1347; Nat. Dispens., 3 ed., p. 1621; ibid.,

5 ed., p. 1716; King's Am. Dispens., 18 ed., v. 2, p. 2089; Am. Jour. Pharm., 58, p. 417; *ibid.*, 62, p. 322; *ibid.*, 62, p. 231; Proc. Am. Pharm. Assoc., 28, p. 168; *ibid.*, 35, p. 151.)

Gives an account of the extracts from Xanthoxylum by means of benzin, ether, alcohol and water. An analysis of each of these was made with many tests for each. From these reactions the bitter principle of the bark was considered to be an alkaloid. Then a determination was made on the metals obtained in the ash content.

(Gehe & Co. in Dresden) 1881.

Zanthoxylum Coco.

Pharm. Centralh., 22, p. 446.

Gives its use in fevers.

Parker, R.H. 1881.

Xanthoxyllin.

Pharm. Jour., 41, p. 66; (Proc. Am. Pharm. Assoc., 30, p. 128).

Under a list of eclectic remedies he gives the color of the powder, the color of the tincture and solubility of Xanthoxylin.

Parodi, D. 1881.

Xanthoxylum Naranjillo.

Pharm. Jour., 40, p. 612.

X. Naranjillo is a rutaceous plant growing wild in the Argentine republic where it is called "naranjillo". It resembles Pilocarpus in its therapeutic properties. He has also separated Xanthoxyline from the plant.

Holmes, E.M. 1882.

(Xanthoxylum Coco).

Pharm. Jour. Trans., 30, p. 237; (Proc. Am. Pharm. Assoc., 30, p. 138.)

States that Xanthoxylum Coco is used against Chucu.
(Chucu is a disease of horses attacked by fever and rigor.)

Maisch, John M. U.S.P., p. 1026. 1882.

Gleanings in Materia Medica. constituent, medicinal

Am. Jour. Pharm., 54, p. 134; (Ibid., 62, p. 177.)

States that Xanthoxylum Coco, Sill., Rutaceae is used
against chucu.

Edes, R.T. 1883.

Xanthoxylum.

Therapeutic Handbook of the U.S.P., p. 354.

Gives the synonyms, constituent, use and dose of
Xanthoxylum.

Heckel, E. & Schlagdenhouffer, F. 1884.

Zanthoxylum Cariboeum & Z. Perrottettii.

Compt. Rend. 98, p. 996; (Pharm. Jour., 43, p. 965; Am. Jour.
Pharm., 56, p. 579; ibid., 62, p. 177; Proc. Am. Pharm. Assoc.
33, p. 16; Jour. Chem. Soc., 46, p. 848.)

State that the bark is known as "bois piquant" and
"clavaliere jeune ou epineux" in the Antilles. The physical
and chemical properties of the crystalline principle are
given. 0.005 gm. administered hypodermically to a frog
caused a general paralysis and death in a half hour. They
have also isolated a resinous substance of alkaloidal charac-
ter.

Oldberg, O. and Wall, O.A. 1884.

Xanthoxylum.

A Companion to the U.S.P., p. 1025.

Gives the origin, habitat, part used, description, con-
stituents, medical uses and dose.

Oldberg, O. and Wall, O.A.

1884.

Xanthoxyli Fructus.

A Companion to the U.S.P., p. 1026.

Gives the origin, description, constituent, medicinal use and dose of the fruit of Prickly Ash.

Peckholt, G.

1884.

(Casca de Tinguaciba).

Pharm. Centralh., 37, p. ; (Am. Jour. Pharm., 56, p. 627; ibid., 62, p. 177; Proc. Am. Pharm. Assoc., 33, p. 102.)

Gives the alkaloidal and sudorific properties of Casca de Tinguaciba which is Xanthoxylum Tinguaciba.

Peckolt, G.

1884.

Jaborandi.

Am. Jour. Pharm., 56, p. 622; (Am. Jour. Pharm., 56, p. 622).

States that various leaves of other rutaceous plants, more especially those of the Xanthoxylum, are exported under the name of Jaborandi by ignorant collectors.

Sargent, C.S.

1885.

Rutaceae.

Woods of the U.S., p. 8; (Am. Jour. Pharm., 62, p. 321; U.S. Dispens., 17 ed., p. 1461).

Gives the English name, Latin name, use and a very complete habitat on flour species of Xanthoxylum.

Fenner, B.

1886.

Xanthoxylum.

Fenner's Working Formulae, 2 ed., p. 483.

Gives the part used, use and dose of Prickly Ash.

Maisch, J.M. 1886.

Materia Medica of the New Mexican Pharmacopoeia.

Am. Jour. Pharm., 58, p. 72.

Xanthoxylon pentanome, Rutaceae, has its habitat in Mexico. Gives the description, constituents and uses of the bark of the above species.

Moffit, E.T. 1886.

Xanthoxylum Fraxineum.

Am. Jour. Pharm., 58, p. 417; (U.S. Dispens., 17 ed., p. 1462; ibid., 19 ed., p. 1347; King's Am. Dispens., v. 2, 18 ed., p. 2089; Am. Jour. Pharm. 58, p. 417; ibid., 62, pp. 231 & 323; Pharm. Jour. 46, p. 349; Proc. Am. Pharm. Assoc., 35, p. 151).

Gives the moisture content, ash content, and extraction with relative solvents plus tests for Xanthoxylum.

_____ 1886.

Xanthoxylon Capense.

West. Drugg., 8, p. 400.

States that Xanthoxylum Capense has been found of value in the treatment of blood poisoning arising from eating the blood of cattle dying from splenic fever.

Bentley, R. 1887.

(Xanthoxylum).

Manual of Botany, p. 502; ibid., p. 276; (Pharm. Jour., 22, p. 400.)

(The original was not available.)

Giacosa, P. & Monari, _____. 1887.

Artar Root.

Pharm. Centralh., 28, p. 314; (Pharm. Jour., 47, p. 91; Proc. Am. Pharm. Assoc., 36, p. 398).

The drug is obtained on the west coast of Africa from plants very closely allied to *Xanthoxylum senegalense* and *X. fraxineum*.

Amadeo, A.J. 1888.

Xanthoxylum Caribbeum.

Pharm. Jour., 47, p. 906.

States that this tree is very abundant in Porto Rico. The decoction of the leaves is a powerful diaphoretic, useful in tetanus. Some use it for syphilis. It is very bitter.

Blechynden, R. 1888.

Evodia Seed.

Chem. & Drugg., 33, p. 560.

He agrees with Helbing that *Xanthoxylum Hamiltonianum* has been mistaken for *Evodia fraxinifolia*. Gives the uses and description of the *X. Hamiltonianum*.

Giacosa, P. & Monari, __. 1888.

Xanthoxylum Senegalense.

Proc. Am. Pharm. Assoc., 36, pp. 398 & 569.

In "artar root" a drug identified by Dr. Easmore to be evidently derived from *Xanthoxylum Senegalense* contains two alkaloids, appearing in different quantities. The one shows none of the reactions of berberine but gives the reaction physiologically. The second is crystallizable in red laminae and forms yellow salts with acids.

Helbing, H. 1888.

Note on the Fruit of *Evodia Fraxinifolia*.

Chem. & Drugg., 32, p. 394; (Ibid., 33, p. 560).

States that *Evodia fraxinifolia* has been frequently delineated under the name of *Xanthoxylum*. The oil of *Xanthoxylum Hamiltonianum* is used to deodorize iodoform and the oil of *Evodia fraxinifolia* is not suited for this.

Giacosa, P. & Soave, M.

1889.

(Studj. chimici e farmacologici sulla corteccia di Xanthoxylon senegalense).

Ann. di chim. e di farm., 4 ser., 9, p. 209; (Surg. Gen. Libr. Ind., s. 1, v. 16, p. 721; Chem. Zeit., 1889, p. 220; Pharm. Jour., 49, p. 163; Proc. Am. Pharm. Assoc., 38, p. 458; *ibid.*, 39, p. 414; Am. Jour. Pharm., 62, pp. 177 and 500; U.S. Dispens., 17 ed., p. 1462; *ibid.*, 19 ed., p. 1347; Jour. Chem. Soc., 58, p. 918; Gazette, 19, p. 303).

Give a description of the drug, the properties of three alkaloids and a neutral principle obtained from it.

Rev. Com. U.S.P.

1889.

Xanthoxylum.

Digest of Criticism of the U.S.P., 6 rev., part 1, 1889, p. 188.

State that Xanthoxylum under the lens exhibits minute crystals.

Eberhardt, E.G.

1890.

Xanthoxylum Carolinianum.

Proc. Am. Pharm. Assoc., 38, p. 457; (Am. Jour. Pharm., 62, p. 231; U.S. Dispens., 17 ed., p. 1462; *ibid.*, 19 ed., p. 1347; King's Am. Dispens., v. 2, 18 ed., p. 2089; Am. Jour. Pharm., 62, p. 323; *ibid.*, 62, p. 251; Proc. Am. Pharm. Assoc., 38, p. 458.)

He brings out the distinct characters of the crystalline principle of Xanthoxylum Carolinianum from that of X. fraxineum. Lloyd thinks they are probably allied compounds differing in constitution. The method for extraction was identical for samples of each and they were identical in their chemical and physical properties.

Giacosa, P. & Soave, M.

1890.

Bark of Xanthoxylon Senegalense.

Pharm. Jour., 50, p. 168. (Proc. Am. Pharm. Assoc., 39, p. 415.)

Gives a description of the drug as to the root, bark and wood. The method employed for isolation of the alkaloids and a detail physical and chemical action of the alkaloids.

Lloyd, J.U.

1890.

On a Crystalline Principle from *Xanthoxylum Fraxineum*.

Am. Jour. Pharm., 62, p. 229 & 251. (Proc. Am. Pharm. Assoc. 38, p. 457.)

A brief review of the extraction of the principle Xanthoxylin from the bark. It is of interest from a chemical rather than medical stand point. The principle seems therapeutically inert.

Maisch, John M.

1890.

The Botanical Origin of Some Pharmacopoeial Drugs.

Am. Jour. Pharm., 62, p. 321-325; (Proc. Am. Pharm. Assoc., 39, p. 414; Pharm. Jour., 50, p. 45;)

The botanical nomenclature was rather confusing heretofore. A list of synonyms and their habitats is given for both varieties of the southern and northern prickly ash. The southern prickly ash from a few years back differs slightly in its microscopical appearance from the southern prickly ash of today.

Since the different varieties give so much confusion they are described very extensively in regard to physical, histological and partly to their constituents with references to all sources.

Maisch, John M.

1890.

Gleanings in Materia Medica.

Am. Jour. Pharm., 62, p. 177.

States that *Xanthoxylum Naranjillo* is used as a sudorific and diuretic. It is found to contain a volatile oil and alkaloid.

Xanthoxylum senegalense was found to have three alka-

loids in the root bark one of which is stated to be very similar to berberine. A description of drug is also given.

Parodi, D. 1890.

Xanthoxylum Naranjillo.

Am. Jour. Pharm., 62, p. 177; (Proc. Am. Pharm. Assoc., 38, p. 458.)

States Xanthoxylum Naranjillo is used as a sudorific and diuretic. He found a volatile oil and an alkaloid in it.

Barber, C.A. 1892.

Conical Corky Spines of Xanthoxylum.

Annals of Bot., 6, p. 154. (Proc. Am. Pharm. Assoc., 41, p. 699; Am. Jour. Pharm., 64, p. 525; Pharm. Jour., 52, p. 108).

Traces the development of the corky spines of Xanthoxylum alatum as observed in fresh material thru all the stages of growth. Two plates illustrating.

Schoer, __. 1893.

(Xanthoxylum).

Beiträge zur Geschichte des Berberins, Zurich, 1893; (King's Am. Dispens., v. 2, 18 ed., p. 2089).

(The original was not available).

Stille, A. Maisch, J., Caspari, C. & Maisch, H. 1894.

Xanthoxylum, U.S. - Prickly Ash.

Nat. Dispens., 5 ed., p. 1715.

Gives species, order, origin, habitat, description, substitution, constituents, action and uses of Prickly Ash.

Wood, H.C. & Remington, J.P. & Sadtler, S.P. 1894.

Xanthoxylum U.S. Xanthoxylum (Prickly Ash).

U.S. Dispens., 17 ed., p. 1461; U.S. Dispens., 19 ed., p. 1346.

Gives the U.S.P. definition, general characteristics, allied species, chemistry, properties, medical properties and uses and references of Prickly Ash.

Bocquillon, H. 1895.

Xanthoxylum Cariboeum.

Am. Drug. & Pharm. Rec., 27, p. 68.

Under a list of drug the extract content of Xanthoxylum cariboeum was given as 105 Gm. per 1000.

1895.

(Xanthoxylum Fraxineum).

Chicago Medical Times, , . (Ecler. Med. Jour., 55, p. 571.)

It is a stimulant to the nerves and is a specific when there is a lack of tone in the nervous system, a general torpidity, with sluggish circulation. Was extensively used in the cholera epidemic with excellent results.

Xanthoxylum in certain lines acts as similarly to strychnia, having a wider action than strychnia. On the capillary circulation it resembles belladonna without the toxic properties.

Dohme, A. 1897.

Prickly Ash Bark.

Drugg. Circ., 41, p. 65; (Dig. Criticism of U.S.P., 7 rev., part 2, p. 144.)

Gives a botanical description of the bark with one drawing.

Lloyd, J.U. 1897.

Hydrastis Canadensis.

West. Drug. 19, p. 59.

Gives the names of four yellow coloring materials or alkaloid, namely, jamaicine, xanthopicrite, hydrastine and berberine. Berberine most common.

Ough, L.

1898.

Zanthoxylin.

Chem. & Drugg., 52, p. 548; (Proc. Am. Pharm. Assoc., 46, p. 714.)

The resinoid is obtained from both Xanthoxylum fraxineum and X. carolinianum which are indigenous to North America. A description of each drug is given and also its habitat. Furthermore he gives a detailed method of preparation of the resinoid.

Rev. Com. U.S.P.

1898.

Xanthoxylum.

Digest of Criticism of U.S.P., 7 rev., 1898, part 2, p. 144.

Gives references for ash, moisture and histology.

King's An. Dispens., 7, 2, 19 ed., p. 308.

1898.

Xanthoxylum Alatum.

Chem. & Drugg., 52, p. 995.

It is a shrub or small tree from the Himalayan region. In India the branches are used to make toothbrushes, and the fruit as a remedy for tooth-ache, as a condiment and also to purify the water.

Bloyer, W.E.

1899.

Xanthoxylum.

Eclac. Med. Jour., 59, p. 105.

Former times both the bark and the berries were official and now only the berries are official. Many are not aware of the value of prickly ash.

It is a great stimulant to mucous membranes. In many

cases it acts very much like belladonna or strychnine, though it is non-poisonous. In quite a number of cases of chronic dyspepsia Xanthoxylum is the remedy. Next to colocynt, no other drug is prescribed for flatulency so frequently.

No bad effects have been heard of from the administration of the drug.

Hooker, J.D.

1899.

Xanthoxylum Multifoliolatum.

Icones Plantarum, 26, plate 2595; (U.S. Dispens., 19 ed., p. 1346; King's Am. Dispens., v. 2, 18 ed., p. 2087; *ibid.*, 8 ed., p. 871; *ibid.* 6 ed., p. 979; Am. Jour. Pharm., 62, p. 321; Pharm. Jour., ser. 2, v. 4, p. 400.)

Gives a botanical description and habitat with illustrations of this drug.

Felter, H.W. & Lloyd, J.U.

1900.

Xanthoxylum (U.S.P.) - Xanthoxylum.

King's Am. Dispens., v. 2, 18 ed., p. 2087.

Gives the botanical names, order, common names, illustrations, botanical source, history, description, chemical composition, action, medical uses, dosage, specific indications and uses, preparation and related species of Xanthoxylum.

Cliffe, W.L.

1901.

Note on Southern Prickly Ash Bark.

Am. Jour. Pharm., 73, p. 562. (U.S. Dispens., 19 ed., p. 1347.)

He states Xanthoxylum Americanum is generally used in the manufacture of pharmaceutical preparations although both are official.

Wines prepared from the two varieties can be easily distinguished. Prickly ash has been prescribed frequently as a uterine tonic and stimulant.

Rev. Com. U.S.P. 1901.

Xanthoxylum.

Digest Criticism of the U.S.P. 7 rev., 1901, part 3, p. 180.

Gives an account of the structure and microscopical characteristics.

Gordin, H.M. 1903.

On the Crystalline Substances of Prickly Ash Bark.

Am. Jour. Pharm., 75, p. 429. (Chem. & Drugg., 70, p. 335; Jour. Am. Med. Soc., 28, p. 1649; Dig. & Com. U.S.P. & N.F., 1906, p. 516).

Isolated the alkaloids from both northern and southern Xanthoxylum. The results of his experiment tend to show that the one from the southern is possibly an alcohol or a phenol of which the Xanthoxylin northern is the methyl ether. The formula of the southern could then be written $C_{14}H_{11}(OH)O_3$ and of the northern, $C_{14}H_{11}(O.CH_3)O_3$.

Van der Haar, A. 1903.

Xanthoxylum Scandens.

Rev. Med. Pharm., 10, p. 802; (Pharm. Jour., 71, p. 134; ibid., 73, p. 814; U.S. Dispens., 19 ed., p. 1347; Proc. Am. Pharm. Assoc., 53, p. 646).

Gives the chemical properties of X. scandens, a Japanese plant used by natives for fish poisoning.

Henkel, Alice 1906.

Wild Medicinal Plants of the U.S.

Bur. Plant Ind., U.S. Dept. Agric. Bull., No. 89, p. 76; (Dig. & Com. U.S.P. & N.F., 1906, p. 516).

Gives the habitat of northern prickly ash.

Schimmel & Co. 1907.

New Essential Oils.

An oil is obtained from *Evodia aubertia*, for a long time known as *Xanthoxylum aubertia*, and known in Reunion as *Catafaille blanc*. Give the physical and chemical properties of this oil.

Pharm. Jour., 82, p. 326.

Gray, A. 1908.

Zanthoxylum.

Gray's New Manual of Bot., 7 ed., p. 537; (*Am. Jour. Pharm.*, 62, p. 325).

Gives a description of southern and northern prickly ash.

Capps, J., Pratt, J., McCrae, T. & Halsey, J. 1909.

Xanthoxylum.

Report of the Com. of Revision of the U.S.P. *Jour. Am. Med. Assoc.*, 53, p. 792; (*Dig. Com. U.S.P. & N.F.*, 1909, p. 727).

Favor deletion of the drug from U.S.P.

Fussel, M.H. 1909.

(Xanthoxylum).

Tr. Am. Med. Assoc., Sec. Pharm. & Therapeutics, 1909, p. 205. (*Dig. Com. U.S.P. & N.F.*, 1909, p. 727).

Recommends the deletion of *Xanthoxylum* from the U.S.P. stating the drug is not well defined in its uses.

Jones, E.G. 1909.

Action of Xanthoxylum.

Jour. Therap. & Diet., 4, p. 294; (*Dig. Com. U.S.P. & N.F.*, 1909, p. 727).

Asserts that *Xanthoxylum* increases the action of strychnia.

States that this tree widely dispersed in the Cape Colony.

1909.

Xanthoxylum.

Pharm. Jour., 83, p. 526.

Gives the official names, description, uses and dose of Xanthoxylum americanum and X. Clava-herculis.

Holmes, E.M.

1910.

Xanthoxylum Thunbergianum.

Pharm. Jour. & Pharmacist, 84, p. 25; (Proc. Am. Pharm. Assoc. 58, p. 198).

The root of this South-African drug is used as a snake-bite remedy. The local name "paardipvam" signifies mare's teats because of the similar shape of the spine of the stem. It is very effective for the very poisonous snakes.

LaWall, C. & Bradshaw, H.A.

1910.

Ash Standards in Drugs.

Am. Jour. Pharm., 69, p. 137; (Proc. Am. Pharm. Assoc., 58, p. 754; Dig. Com. U.S.P. & N.F., 1910, p. 774.)

Gives the percentage of ash in Xanthoxylum.

Leming, W.

1910.

Xanthoxylum.

Eclec. Med. Jour., 70, p. 581; (Dig. Com. U.S.P. & N.F., 1910, p. 774).

Gives the specific indications for Xanthoxylum.

Oliver, G.E.

1910.

Xanthoxylum Capense - A Kaffir Antidote Against Anthrox.

Chem. & Drugg., 76, p. 115; (Proc. Am. Pharm. Assoc., 58, p. 197).

States that this tree widely dispersed in the Cape Colony.

Natives drink infusions of the root as an antidote against the ill effects of eating anthrax-diseased meat. It is known to them as "knobwood", "wild cardamom" and "Paarde Pram". Also gives a description of the drug.

Schimmel & Co.

1910.

Oil of Xanthoxylum Alatum.

Rept. 1910, p. 147; (Chem. & Drugg., 77, p. 46; Proc. Am. Pharm. Assoc., 59, p. 408).

Gives the method of distillation and the properties of each fraction of the oil.

Yeo, J.H.

1910.

Xanthoxylum Thunbergianum.

Pharm. Jour., 84, p. 25; (Proc. Am. Pharm. Assoc., 58, p. 198).

In Potchefstroom it is known as Paardepoam which signifies "mare's teats" because of the thickened spines. A remedy for snake bites.

Holm, T.

1911.

Medicinal Plants of North America.

Merck's Rept., 20, p. 4; (Dig. Com. U.S.P. and N.F., 1911, p. 673).

Xanthoxylum has typical sclerenchyma cells, bast, prismatic crystals and resin cells.

Leming, W.

1911.

(Xanthoxylum).

Jour. Therap. & Diet., 5, p. 30; (Dig. Com. U.S.P. & N.F. 1911, p. 673).

Gives specific indications for Xanthoxylum.

Leprince, M.

1911.

Oil of Xanthoxylum Ochroxylum.

Schimmel's Rep., 1911, p. 102; (Proc. Am. Pharm. Assoc., 59, p. 409; Surg. Gen. Ind. Catal., 2 ser., v. 21, p. 370; Repert. Pharm., 24, p. 215; Dig. & Com. U.S.P. & N.F., 1912, p. 486).

Gives the physical and chemical properties of this oil.

Lloyd, J.U. 1911.

Xanthoxylum.

Lloyd Libr. Bull., 18, p. 92. (Dig. Com. U.S.P. & N.F., 1911, p. 673).

States the drug was used for Asiatic cholera and probably originated with the Indians.

Rabe, R.P. 1911.

Xanthoxylum.

Hahnemann, Month., 46, p. 400. (Dig. Com. U.S.P. & N.F., 1911, p. 673).

States that the drug is indicated in cases of dysmenorrhoea.

1911.

(Xanthoxylum Olatum).

Pharm. Post, , p. ; (Am. Drugg. & Pharm. Rec., 58, p. 348).

States it is the fruit of the Chinese Wild Pepper. Gives a few of its chemical properties.

Hochst, __. 1912.

Cedar Wood Oil.

Schimmel's Rep., 1912, p. 39; (Yrbk. Am. Pharm. Assoc., 1, p. 247).

Xanthoxylum martinicense and Juniperus procera occur in Dominica.

Semmler, __. & Schossberger, __.

1912.

Xanthoxylum Oils.

Chem. & Drugg., 80, p. 171.

They have examined the oils distilled from Xanthoxylum antertia and X. alatum. The oil of the X. antertia gave three fractions each of which were terpenes. Eugenol methyl ether was also isolated and a solid body having the formula $C_{10}H_{12}O_4$. The oil of the X. alatum contained 80% of terpenes and cūmic aldehyde.

Thompson, G.W.

1912.

(Xanthoxylum).

Nat. Ecler. Med. Assoc. Quart., v, 4, p. 330; (Dig. Com. U.S.P. & N.F., 1912, p. 486).

Discusses the action of the drug on the heart.

Thoms, H.

1912.

The Chemical Constituents of the Fruits of Fagara Xanthoxylodes.

Pharm. Jour., 88, p. 29; (Yrbk. Am. Jour. Pharm. 1, p. 197).

Gives the physical and chemical properties of the constituents of this drug.

Felter, H.W.

1913.

Xanthoxylum.

Ecler. Med. Jour., 83, p. 658; (Dig. & Com. U.S.P. & N.F. 1913, p. 507.)

Very beneficial in stomach disorders and ideal for flatulent dyspepsia when given with hydrastis and capsicum. It should be remembered when the nerve force is low.

Freedman, J.H.

1913.

(Xanthoxylum)

Nat. Ecler. Med. Assoc., Quart., 5, p. 142; (Dig. Com. U.S.P. & N.F., 1913, p. 507.)

The drug is used as a stimulating diaphoretic.

Henkel, Alice 1913.

American Medicinal Flowers, Fruits and Seeds.

U.S. Agric. Dept. Bull. No. 26, p. 8; (Dig. Com. U.S.P. & N.F., 1913, p. 506.)

Gives the synonyms, habitat, description, collection, uses and prices of Prickly Ash Berries.

Leprince, __. 1913.

Constituents of Xanthoxylum Ochroxylum.

Drugg. Circ., 57, p. 452.

Gives an account of the medicinal use in South America and also the properties of the two alkaloids he has separated from the drug.

Thurston, A. & Thurston, A.N. 1913.

Ash & Moisture Constants of Powdered Vegetable Drugs.

Jour. Am. Pharm. Assoc., 2, p. 476; (Dig. & Com. U.S.P. & N.F., 1913, p. 507.)

Gives the percentage of moisture and ash of Prickly Ash Bark.

Chairman, U.S.P. Rev. Com. 1914.

Zanthoxylum.

Jour. Am. Pharm. Assoc., 3, p. 414; (Pharm. Era, 47, p. 363; Abstr. Prop. Changes, p. 56; Dig. Com. U.S.P. & N.F. 1914, p. 505.)

Gives a definition of Xanthoxylum with a full botanical description.

Henkel, Alice 1914.

Prickly Ash.

Phys. Drug. News, 9, p. 154; (Spatula 20, p. 407; Dig. Com. U.S.P. & N.F., 1914, p. 505.)

Gives an illustrated description of Northern and Southern Prickly Ash.

Maines, E. L. 1914.

Ash Content of Crude Drugs.

Jour. Am. Pharm. Assoc., 3, p. 426; (Dig. & Com. U.S.P. & N.F., 1914, p. 505.)

Gives the percentage of ash of prickly ash bark.

Rehder, H. 1914.

Zanthoxylum trifoliatum.

Bailey's Stand. Cycl. of Hort., v. 1, p. 193.

Gives a botanical description and habitat of the drug.

Rehder, A. 1914.

Zanthoxylum Daniellii.

Bailey's Stand. Cycl. of Hort., v. 2, p. 1185; (ibid., v. 6, p. 3639).

Gives a description of the drug.

Rippetoe, J.R. 1914.

The Examination of Some Drugs.

Am. Jour. Pharm., 86, p. 443; (Dig. Com. U.S.P. & N.F., 1914, p. 505.)

Gives the percentage of ash of prickly ash bark.

Holmes, E.M. 1916.

The Botany of the New U.S.P.

Pharm. Jour., 97, p. 485; (Dig. Com. U.S.P. & N.F., 1916, p. 310.)

Gives the botanical source of Prickly Ash Bark.

Uchida, S. 1916.

Japanese Essential Oils.

Chem. & Drugg., 88, p. 476; (Yrbk. Am. Pharm. Assoc., 5, p. 307.)

The chemists to the Forest Experimental Station at Tokyo state that the berries of a wild shrub, *Xanthoxylum piperitum*, yield about 5.7% of an essential oil. Gives its chemical and physical properties. It has an agreeable odour and should find employment in perfumery.

Anon. 1916.

Xanthoxylum (Prickly Ash).

N.A.R.D.J., 21, p. 1058; (Dig. Com. U.S.P. & N.F., 1916, p. 310.)

Refers to the production and collection of prickly ash in the United States.

Bocquillon, H. 1917.

(New Active Principles in the Genus *Xanthoxylum*).

Repertoire de Pharm., 28, p. 66; (Pharm. Jour., 98, p. 275; Yrbk. Am. Pharm. Assoc., 6, p. 236; Drugg. Circ., 61, p. 244.)

States that it has been established that the crystalline principles found in *Xanthoxylum* are lactones. From *X. cariboeum* the lactone carixanthide has been separated, similarly carolixanthide from *X. carolinianum*, others from *X. senegalense*, *X. piperitum* and *X. octroxylum*.

Rehder, A. 1917.

Zanthoxylum.

Standard Cycl. of Hort., Bailey, v. 6, p. 3537.

Gives a botanical description and habitat of several species of the drug.

Roark, R.C.

1919.

Plants Used as Insecticides.

Am. Jour. Pharm., 91, p. 107.

States that the leaves of *Zanthoxylum Clava-Hercules* seemed obnoxious to cotton worms.

Schimosaki, ___.

1919.

Xanthoxylum Oil.

Am. Perf., 13, p. 354; (Dig. Com. U.S.P. & N.F., 1919, p. 372.)

Shows the important physical and chemical constants of the oil from the leaves of a Japanese species of *Xanthoxylum*.

Dieterle, H.

1920.

(*Xanthoxylum* *Budrunga*).

J. Soc. Chem. Ind., 39, p. 81; (Yrbk. Am. Pharm. Assoc., 9, p. 341.)

Gives the amount of Xanthosterol in the bark of the drug.

Felter, H.W.

1920.

Xanthoxylum.

Eclec. Med. Jour., 80, p. 48; (Dig. Com. U.S.P. & N.F. 1920, p. 404).

Is an ideal gastric stimulant, often tying in efficiency with capsicum and ginger. In case of atony of the stomach and of the bowels is present it acts well with *mux vomica* or *hydrastis*. The dose being from 5 to 10 drops of specific medicine *Xanthoxylum* in hot water every 3 hours.

Gane, F.H.

1920.

Revision of the U.S.P.

Am. Drugg. & Ph. Rec., 68, p. 25; Jour. Am. Pharm. Assoc., 9, p. 336; Dig. Com. U.S.P. & N.F. 1920, p. 404.)

Suggests that *Xanthoxylum* ve dropped from the U.S.P.

Hommell, P.E. 1920.

(Xanthoxylum).

Proc. N.J. Pharm. Assoc., 50, p. 40; (Dig. Com. U.S.P. & N.F., 1920, p. 404.)

Gives reasons for retaining Xanthoxylum in the U.S.P.

Youngken, H.W. 1920.

Xanthoxylum.

Jour. Am. Pharm. Assoc., 9, p. 418; (Dig. & Com. U.S.P. & N.F., 1920, p. 404.)

A comment on the U.S.P. description of the histology in regard to the word "transverse" and also in regard to the width of medullary rays.

Goodson, J.A. 1921.

Xanthoxylum Macrophyllum.

Biochem. Jour., 15, p. 123; (Yrbk. Am. Pharm. Assoc., 10, p. 288.)

States that the constituent of X. macrophyllum is agar-amide which was previously isolated from Fagara Xanthoxylidis.

Parke, Davis & Co. 1921.

(Xanthoxylum).

Proc. N.W.D.A., 47, p. 219; (Dig. Com. U.S.P. & N.F., 1921, p. 279).

State prickly elder is occasionally offered as a substitute for Xanthoxylum.

1923.

(Xanthoxylum).

Calif. Eclec. Med. Jour., , p. (Eclec. Med. Jour., 83, p. 340.)

This is an indigenous shrub with a 100 yr. old medical history. Its action is positive and unmistakable and yet non-poisonous.

The action of xanthoxylum on the mucous membranes of the alimentary tract is comparable to the action of lobelia on the mucous membrane of the respiratory tract.

The original reference was not available.

1925.

(Oil of Zanthoxylum Ovalifolium).

Indian Forest Record, 1924, v. 12; (Chem. & Drugg., 102, p. 457.)

The seeds of this drug have been examined in regard to their volatile oil content. The oil consisted essentially of myrcene and safrol. In addition a sesquiterpene alcohol, palmitic acid and a trace of phenol were also found.

The following list gives the differences in the constituents of the oils present in the seeds of the Species of Zanthoxylum found in India:

<u>Species</u>	<u>Chief Constituents</u>
Z. alatum	l-a-phellandrene, linalol.
Z. acanthopodium	dipentene, l-a-phellandrene, d-linalol, methyl cinnamate
Z. Budrunga	l-sabinene
Z. ovalifolium	myrcene, safrol

Frug, ___ & Urlean, ___

(Fagara flava (Vahl)).

Original reference was not given. (U.S. Dispens., 19 ed., p. 1316.)

Maiden, J.H.

(Xanthoxylum veneficum).

Original reference was not given. (U.S. Dispens., 19 ed., p. 1346.)

Mease, J.

List of Periodicals Consulted

(Xanthoxylum).

1884-1891 (13-20)

Dom. Ency., p. . (Coxe's Am. Dispens., 4 ed., p. 629; ibid., 7 ed., p. 659; Thatcher's Am. New Dispens., 2 ed., p. 369; ibid., 4 ed., p. 414.)

The original reference was not available.

Merrel, W.S.

(Xanthoxylum).

1891-97 (1-6)

Original reference was not given. (Am. Disp., 6 ed., p. 980; ibid., 8 ed., p. 871.)

1887-1926 (13-79)

Robinson, J.B.

(Xanthoxylum).

1902-11 (1-6)

1891-1926 (8-40)

The original reference was not given. (Am. Dispens., 6 ed., p. 980.)

1864-1927 (1-106)

1903-1922

Willick, ___.

(Xanthoxylum).

1882-1926 (12-85)

1812-1927 (1-16)

1839-80 (1-19)

1876-83 (6-8; 11-18)

The original reference was not given. (Coxe's Am. Dispens., 4 ed., p. 629; ibid., 7 ed., p. 659; Thatcher's Am. New Dispens., 2 ed., p. 369; ibid., 4 ed., p. 414.)

1841-1927 (1-119)

1864-93 (4-15)

1882-1911 (1-55)

1882-1927 (4-49)

1912-22 (1-12)

List of Periodicals Consulted

Am. Drugg.	1884-1891	(13-20)
Am. Drugg. & Pharm. Rec.	1892-1926	(21-74)
Am. Jour. Pharm.	1829-1927	(1-99)
Am. Perfum.	1908, 1914-1927	(3;9-21)
Am. Pharm.	1882	
Apothecary	1891-97	(1-6)
Br. & Col. Drugg.	1887-1926	(12-79)
Buffalo Drugg.	1895-6	(1-2)
Bull. Am. Pharm. Assoc.	1906-11	(1-6)
Bull. Pharm.	1891-1926	(5-40)
Chem. & Drugg.	1864-1927	(1-106)
Dig. Com. U.S.P. & N.F.	1905-1922	_____
Drugg. Circ.	1857-1927	(1-71)
Eclec. Med. Jour.	1853-1925	(12-85)
Jour. Am. Pharm. Assoc.	1912-1927	(1-16)
Jour. Mat. Med.	1859-80	(1-19)
New Remedies	1876-83	(6-8; 11-12)
Pharm. Era	1887-1925	(1-61)
Pharm. Jour.	1841-1927	(1-119)
Pharm. Rec.	1884-93	(4-15)
Proc. Am. Pharm. Assoc.	1852-1911	(1-59)
West. Drugg.	1882-1927	(4-49)
Yrbk. Am. Pharm. Assoc.	1912-23	(1-12)

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1884; 5 ed., 1894.
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1836; 4 ed., 1839; 5 ed., 1843; 7 ed., 1847; 9 ed.,
1851; 10 ed., 1854; 12 ed., 1865; 13 ed., 1870; 14 ed.,
1879; 15 ed., 1883; 17 ed., 1894; 19 ed., 1907; 20 ed.,
1918; 21 ed., 1926.

U.S.P. 1820. P. p. 49.

Zanthoxylum - Zanthoxylum Fraxineum W. IV.
Prickly Ash - 734. No. III 186.
Cortex. The bark.

UNITED STATES PHARMACOPOEIA (O-X)

(1820-1920)

and

NATIONAL FORMULARY (I-X)

(1888-1926)

U.S.P. (N.F.) 1830. p. 68.

History

of

Zanthoxylum americanum Miller

and

Zanthoxylum Clava-Herculis Linne

Med. Oper. Stimulant, diaphoretic.

Dose 1 to ss.

U.S.P. 1840. S. p. 49.

Zanthoxylum. Prickly Ash.

The bark of Zanthoxylum fraxineum.

U.S.P. 1820. P. p. 49.

- Xanthoxylum - Xanthoxylum fraxineum W. IV.
- Prickly Ash - 754. Bw. III 156.
- Cortex. The bark.

U.S.P. (Phila.) 1830. S. p. 38.

- Xanthoxylum - Xanthoxylum fraxineum W.
- Prickly Ash - IV 754 Bw. iii. 156
- Cortex. The bark.

U.S.P. (N.Y.) 1830. p. 65.

- Zanthoxyli Cortex - Zanthoxylum Fraxineum
- Prickly Ash Bark.

Prop. Taste, aromatic, bitterish, acrid; virtues communicated to water and alcohol./

Med. Oper. Stimulant, diaphoretic.

Dose 1 to ss. Xanthoxylum.

U.S.P. 1840. S. p. 49.

Xanthoxylum. Prickly Ash.

The bark of Xanthoxylum fraxineum.

about one-twenty-fifth of — inch (1 mm.) thick; outer surface brownish-gray, with whitish patches, and minute black dots, faintly furrowed, with some brown, glossy straight, two-edged spines, linear at the base, and about

U.S.P. 1850. S. p. 55.

Xanthoxylum. Prickly Ash.

The bark of Xanthoxylum Fraxineum.

U.S.P. 1860. S. p. 63.

Xanthoxylum. Prickly ash.

The bark of Xanthoxylum fraxineum.

U.S.P. 1870. S. p. 62.

Xanthoxylum. Prickly Ash.

The bark of Xanthoxylum fraxineum, and of Xanthoxylum Carolinianum.

U.S.P. 1880. p. 379.

Xanthoxylum

Xanthoxylum.

(Prickly Ash).

The bark of Xanthoxylum fraxineum Willdenow, and of Xanthoxylum/ carolinianum Lambert (Nat. Ord., Rutaceae, Xanthoxyleae.)/

Xanthoxylum fraxineum is in curved or quilled fragments, about one-twenty-/fifth of an inch (1 mm.) thick; outer surface brownish-gray, with whitish/ patches, and minute, black dots, faintly furrowed, with some brown, glossy/ straight, two-edged spines, linear at the base, and about

a quarter of an inch (6/ mm.) long; inner surface whitish, smooth; fracture short, non-fibrous, / green in the outer, and yellowish in the inner layer; inodorous; bitterish, very / pungent.

Xanthoxylum carolianianum resembles the preceding, but is about one-twelfth of an inch (2 mm.) thick, and is marked by many conical, corky projections, sometimes 4/5 of an inch (2 cm.) high, and by stout, brown / spines, rising from a corky base.

Xanthoxylum should not be confounded with the bark of *Aralia spinosa* Linne / which is nearly smooth externally, and beset with slender prickles in transverse / rows.

Preparation: Extractum Xanthoxyli Fluidum.

U.S.P. 1900, p. 504.

Xanthoxylum.
U.S.P. 1890, p. 452.

Xanthoxylum

Xanthoxylum

(Prickly Ash)

The bark of *Xanthoxylum americanum* Miller, and of *Xanthoxylum* / *Clava-Herculis* Linne (nat. ord. Rutaceae).

Xanthoxylum americanum (Northern Prickly Ash) is in curved or quilled / fragments, about 1 Mm. thick; outer surface brownish-gray, with whitish / patches, and minute, black dots, faintly furrowed, with some brown, glossy, / straight, two-edged spines, linear at the base, and about 5 Mm. long; inner / surface whitish, smooth; fracture short, non-fibrous, green in

the outer and/ yellowish in the inner layer; inodorous, taste bitterish, very pungent./

Xanthoxylum Clava-Herculis (Southern Prickly Ash) resembles the preceding,/ but is about 2 Mm. thick, and is marked by many conical, corky projections/ sometimes 2 Cm. high, and by stout, brown spines, rising from a corky base./

Xanthoxylum should not be confounded with the bark of Aralia spinosa/ Linne (nat. ord. Araliaceae), which is nearly smooth externally, and beset with/ slender prickles in transverse rows.

Preparation: Extractum Xanthoxyli Fluidum.

U.S.P. 1910. p. 488.

Xanthoxylum

U.S.P. 1900. p. 504.

Xanthox.

Xanthoxylum. Prickly Ash Bark.

The dried bark of Xanthoxylum americanum Miller, known in

The dried bark of Xanthoxylum americanum Miller (Northern/ Prickly Ash), or of Fagara Clava-Herculis (Linne) Small (Southern/ Prickly Ash) (Fam. Rutaceae)./

Northern Prickly Ash - In curved or quilled fragments, about 1 Mm./ thick; outer surface brownish-gray, with whitish patches, and minute, black/ dots, faintly furrowed, with some brown, glossy, straight, 2 edged spines/ linear at the base, and about 5 Mm. long; inner surface whitish, smooth; fracture short, non-fibrous, green in the outer and yellowish in the inner layer;/ inodorous, taste bitterish, very pungent./

Southern Prickly Ash - In very large quills or sheets, 1

to 2 Mm. thick, externally of a light purplish-gray with large silvery-gray patches, and marked by many large corky projections, frequently 2 Cm. high, which often bear stout brown spines; otherwise like the Northern Prickly Ash.

Xanthoxylum should not be confounded with the bark of *Aralia spinosa* Linne (Fam. Araliaceae), which is nearly smooth externally, and beset with slender prickles in transverse rows.

Average dose - 2 Gm. (30 grains).

U.S.P. 1910 - p. 488.

Xanthoxylum

Xanthoxylum

Xanthox.

Prickly Ash Bark.

The dried bark of *Xanthoxylum americanum* Miller, known in commerce as Northern Prickly Ash Bark, or *Xanthoxylum Clava-Herculis* Linne, known in commerce as Southern Prickly Ash Bark (Fam. Rutaceae).

Northern Prickly Ash Bark - In transversely curved fragments or quills, from 2 to 15 cm. in length; bark from 0.5 to 2 mm. in thickness; outer surface light gray to brownish-gray with grayish patches of foliaceous lichens bearing numerous small black apothecia; longitudinally wrinkled and with numerous whitish lenticels; the cork occasionally abraded, showing the yellowish or orange inner bark; inner surface yellowish-white, finely longitudinally striate and usually

with numerous, bright, shining crystals; fracture short, uneven; odor slight;/ taste bitter, acrid, becoming pungent.

Under the microscope, transverse sections of Northern Prickly Ash Bark show/ an outer corky layer consisting of from 4 to 20 rows of cells, the tangential walls/ being more or less thickened and lignified; a wide strata of collenchyma inside of/ the cork cambium composed of from 8 to 10 rows of tangentially elongated/ cells, with very thick walls and containing plastids; a more or less indistinct/ row of endodermal cells beneath which occur small groups of primary bast-/fibres; the inner bark consists of numerous parenchyma cells among which are/ included large oil-secretion reservoirs, separated by medullary rays which are/ mostly one cell in width; the parenchyma cells as well as the oil-secretion reser-/voirs contain numerous colorless oily globules.

Scrapings from either the inner/ or outer surface show numerous rod-shape crystals and flat prisms, from 0.015/ to 0.25 mm. in length, which polarize light with a display of bright colors. mm. in diameter, and occurring in the/ parenchyma cells

Southern Prickly Ash Bark - In transversely curved or irregular, oblong,/ flattened pieces, or in quills from 2 to 40 cm. in length, bark from 1 to 4 mm. in/ thickness; outer surface light gray to brownish-gray, marked by numerous large/ barnacle-shaped projections of cork, from 0.5 to 3.5 cm. in thickness, otherwise/ with numerous grayish patches of foliaceous lichens, bearing blackish apothecia,/ and numer-

ous, elliptical lenticals; inner surface light yellowish-brown to olive/ brown obscurely longitudinally striate and free from crystals; odor and taste/ as in Northern Prickly Ash Bark.

Under the microscope, transverse sections of Southern Prickly Ash Bark show/ a strong development of lignified cork occurring in the form of rings, the suc-/cessive layers being separated by several rows of narrow tabular cells strongly/ thickened on the tangential walls; beneath the cork cambium occurs a thin/ layer of collenchyma followed by the outer tissues of the primary cortex and/ consisting of small groups of rather large stone cells and occasionally, scatter-/ ed/ groups of bast-fibres and parenchyma; the inner bark consists of parenchyma/ a more or less indistinct leptome or sieve tissue among which are numerous,/ large, light yellowish oil-secretion reservoirs, medullary rays from 1 to 2 cells in/ width and occasionally groups of stone cells and bast fibres; starch grains numerous,/ nearly spherical, from 0.002 to 0.01 mm. in diameter, and occurring in the/ parenchyma cells and medullary rays; calcium oxalate chiefly in monoclinic/ prisms from 0.01 to 0.025 mm. in diameter, occurring in crystal fibres and in/ parenchyma cells of the primary cortex.

Powdered Xanthoxylum is light grayish-brown, under the microscope it/ shows mostly irregular fragments of cork cells, nearly colorless and strongly/ lignified, fragments of parenchyma containing either small starch grains, oily/ globules

or monoclinic prisms of calcium oxalate; stone cells in small groups with/ thick, colorless walls and containing frequently a reddish-brown substance; bast-/fibres few and non-lignified. In the Northern Prickly Ash, the stone cells are/ usually absent, and the calcium oxalate crystals and the fragments of cork are/ relatively few./

Preparation - Fluidextractum Xanthoxyli./

Average Dose - Metric, 2 Gm. - Apothecaries, 30 grains.

N.F. 5 ed., p. 409.

Xanthoxylum

Xanthoxylum

(U.S.P. IX)

Xanthox.

Prickly Ash Bark.

Xanthoxylum is the dried bark of *Zanthoxylum americanum* Miller,/ known in commerce as Northern Prickly Ash Bark, or *Zanthoxylum/ Clava-Herculis* Linne, known in commerce as Southern Prickly Ash/ Bark (Fam. Rutaceae).

Xanthoxylum contains not more than 2% of foreign organic/ matter.

Description and physical properties.

Underground Northern Xanthoxylum: In transversely curved fragments or quills/ from 2 to 15 cm. in length; bark from 0.5 to 2 mm. in thickness; outer surface/ light gray to brownish gray with grayish patches of foliaceous lichens; longitudinally wrinkled and with numerous whitish lenticles; the

cork occasionally/ abraded, showing the yellowish or orange, inner bark; inner surface yellowish/ white, finely longitudinally striate and usually with numerous, bright, shining/ crystals; fracture short, uneven. Odor slight; taste bitter, acrid, becoming/ pungent.

Structure: An outer corky layer consisting of from 4 to 20 rows of cells, the tan-/gential walls being more or less thickened and lignified; a wide stratum of callenchyma inside of the cork cambium composed of from 8 to 10 rows of tangentially/ elongated cells, with very thick walls and containing plastids; a more or less/ indistinct row of endodermal cells beneath which occur small groups of primary/ bast fibres; the inner bark consists of numerous parenchyma cells among which/ are included large oil-secretion reservoirs, and occasionally a few stone cells,/ separated by medullary rays which are mostly one cell in width; the parenchyma/ cells as well as the oil-secretion reservoirs contain numerous colorless oily glob-/ules. Scrapings from either the inner or outer surface show numerous rod-/shaped crystals and flat prisms, from 0.015 to 0.250 mm. in length, which polarize light with a display of bright colors.

Unground Southern Xanthoxylum: In transversely curved or irregular, oblong,/ flattened pieces, or in quills from 2 to 40 cm. in length, bark from 1 to 4 mm./ in thickness; outer surface light gray to brownish gray, marked by numerous large/ barnacle-shaped projections of cork, from 0.5 to 3.5 cm. in thickness and numer-/ous elliptical lenticels; otherwise with

grayish patches of foliaceous lichens; inner/ surface light yellowish brown to olive-brown, obscurely longitudinally striate/ and free from crystals. Odor and taste as in Northern Prickly Ash Bark.

Structure: A strong development of lignified cork in successive layers the layers/ being separated by several rows of narrow tabular cells strongly thickened on the/ tangential walls; beneath the cork cambium occurs a thin layer of collenchyma/ followed by the outer tissues of the primary cortex and consisting of small groups/ of rather large stone cells and occasional, scattered groups of bast fibres and/ parenchyma; the inner bark consists of parenchyma, a more or less indistinct/ sieve tissue among which are numerous, large light yellowish oil-secretion reser-/voirs, medullary rays 1 or 2 cells in width and occasional groups of stone/ cells and bast fibres; starch grains numerous, occurring in the parenchyma cells/ and medullary rays; calcium oxalate chiefly in monoclinic prisms occurring in/ crystal fibres and in parenchyma cells of the primary cortex.

Powdered Xanthoxylum: Light grayish-brown, irregular fragments of cork cells,/ nearly colorless and strongly lignified, fragments of parenchyma containing/ either small, nearly spherical starch grains 0.002 to 0.010 mm. in diameter, oily/ globules, or monoclinic prisms of calcium oxalate, the latter 0.010 to 0.045 mm./ in length; stone cells up to 0.150 mm. in length in small groups, with thick, color-/less walls

and frequently containing a reddish brown substance; bast fibres few/ and non-lignified. In the Northern Prickly Ash, the stone cells and the frag-/ments of cork are relatively few.

Preparations: Elixir Corydalis Compositum, Elixir Hydrastis Compositum, / Fluidextractum Xanthoxyli.

Average Dose: Metric, 2 Gm. - Apothecaries, 30 grains.

Approved by

W. R. Lehmann

Assoc. Prof. of Pharmacology

Approved by

W. R. Lichtmann

Assoc. Prof. of Pharmacognosy