

DOWNLOAD PDF PRELIMINARY LIST OF THE LEGUMINOSAE IN NORTHEASTERN BRAZIL

Chapter 1 : Daniela Zappi (Author of Preliminary List of the Rubiaceae in Northeastern Brazil)

Download Link: >>> Preliminary List of the Leguminosae in Northeastern Brazil: Repatriation of Kew Herbarium Data for the Flora of Northeastern Brazil Series, Volume 2 But we will picture it for her to laze after we are gone, or you don't mind.

Distribution and habitat [edit] The Fabaceae have an essentially worldwide distribution, being found everywhere except Antarctica and the high arctic. Cross-section through a root nodule of *Vicia* observed through a microscope. Biological nitrogen fixation BNF, performed by the organisms called diazotrophs is a very old process that probably originated in the Archean eon when the primitive atmosphere lacked oxygen. It is only carried out by Euryarchaeota and just 6 of the more than 50 phyla of bacteria. Some of these lineages co-evolved together with the flowering plants establishing the molecular basis of a mutually beneficial symbiotic relationship. BNF is carried out in nodules that are mainly located in the root cortex, although they are occasionally located in the stem as in *Sesbania rostrata*. The spermatophytes that co-evolved with actinorhizal diazotrophs *Frankia* or with rhizobia to establish their symbiotic relationship belong to 11 families contained within the Rosidae clade as established by the gene molecular phylogeny of *rbcL*, a gene coding for part of the RuBisCO enzyme in the chloroplast. This grouping indicates that the predisposition for forming nodules probably only arose once in flowering plants and that it can be considered as an ancestral characteristic that has been conserved or lost in certain lineages. However, such a wide distribution of families and genera within this lineage indicates that nodulation had multiple origins. Of the 10 families within the Rosidae, 8 have nodules formed by actinomyces *Betulaceae* , *Casuarinaceae* , *Coriariaceae* , *Datisceae* , *Elaeagnaceae* , *Myricaceae* , *Rhamnaceae* and *Rosaceae* , and the two remaining families, *Ulmaceae* and *Fabaceae* have nodules formed by rhizobia. Rhizobia are specific to particular host species although a rhizobia species may often infect more than one host species. This means that one plant species may be infected by more than one species of bacteria. For example, nodules in *Acacia senegal* can contain seven species of rhizobia belonging to three different genera. The most distinctive characteristics that allow rhizobia to be distinguished apart are the rapidity of their growth and the type of root nodule that they form with their host. Indeterminate nodules are characteristic of legumes from temperate climates, while determinate nodules are commonly found in species from tropical or subtropical climates. Nodule formation is present in all the leguminosae sub-families, although it is less common in the *Caesalpinioideae*. All types of nodule formation are present in the sub-family *Papilionoideae*: The latter two are thought to be the most modern and specialised type of nodule as they are only present in some lines of the *Papilionoideae* sub-family. Even though nodule formation is common in the two monophyletic subfamilies *Papilionoideae* and *Mimosoideae* they also contain species that do not form nodules. The presence or absence of nodule-forming species within the three sub-families indicates that nodule formation has arisen several times during the evolution of the leguminosae and that this ability has been lost in some lineages. For example, within the genus *Acacia*, a member of the *Mimosoideae*, *A. Chemical ecology*[edit] A large number of species within many genera of leguminous plants, e. *Astragalus* , *Coronilla* , *Hippocrepis* , *Indigofera* , *Lotus* , *Securigera* and *Scorpiurus* , produce chemicals that derive from the compound 3-nitropropanoic acid 3-NPA, beta-nitropropionic acid. The free acid 3-NPA is an irreversible inhibitor of mitochondrial respiration , and thus the compound inhibits the tricarboxylic acid cycle. This inhibition caused by 3-NPA is especially toxic to nerve cells and represents a very general toxic mechanism suggesting a profound ecological importance due to the big number of species producing this compound and its derivatives. A second and closely related class of secondary metabolites that occur in many species of leguminous plants is defined by isoxazolinone derivatives. These compounds occur in particular together with 3-NPA and related derivatives at the same time in the same species, as found in *Astragalus canadensis* and *Astragalus collinus*. Their ability to fix atmospheric nitrogen reduces fertilizer costs for farmers and gardeners who grow legumes, and means that legumes can be used in a crop rotation to

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replenish soil that has been depleted of nitrogen. Legume seeds and foliage have a comparatively higher protein content than non-legume materials, due to the additional nitrogen that legumes receive through the process. Legumes are commonly used as natural fertilizers. Some legume species perform hydraulic lift, which makes them ideal for intercropping. There are of two broad types of forage legumes. Some, like alfalfa, clover, vetch, and *Arachis*, are sown in pasture and grazed by livestock. Other forage legumes such as *Leucaena* or *Albizia* are woody shrub or tree species that are either broken down by livestock or regularly cut by humans to provide stock feed. Grain legumes are cultivated for their seeds, and are also called pulses. The seeds are used for human and animal consumption or for the production of oils for industrial uses. Grain legumes include both herbaceous plants like beans, lentils, lupins, peas and peanuts. Bloom legume species include species such as lupin, which are farmed commercially for their blooms as well as being popular in gardens worldwide. Industrial farmed legumes include *Indigofera*, cultivated for the production of indigo, *Acacia*, for gum arabic, and *Derris*, for the insecticide action of rotenone, a compound it produces. Fallow or green manure legume species are cultivated to be tilled back into the soil to exploit the high nitrogen levels found in most legumes. Numerous legumes are farmed for this purpose, including *Leucaena*, *Cyamopsis* and *Sesbania*. Various legume species are farmed for timber production worldwide, including numerous *Acacia* species, *Dalbergia* species, and *Castanospermum australe*. Melliferous plants offer nectar to bees and other insects to encourage them to carry pollen from the flowers of one plant to others thereby ensuring pollination. A number of legume species are good nectar providers such as alfalfa, white clover, sweet clover and various *Prosopis* species. Many plants in the Fabaceae family are an important source of pollen for the bumblebee species *Bombus hortorum*. This bee species is especially fond of one species in particular; *Trifolium pratense*, also known as red clover, is a popular food source in the diet of *Bombus hortorum*. These exudates contain heterogeneous polysaccharides formed of different sugars and usually containing uronic acids. They form viscous colloidal solutions. There are different species that produce gums. The most important of these species belong to the leguminosae. They are widely used in the pharmaceutical, cosmetic, food and textile sectors. They also have interesting therapeutic properties; for example gum arabic is antitussive and anti-inflammatory. The most well known gums are tragacanth *Astragalus gummifer*, gum arabic *Acacia senegal* and guar gum *Cyamopsis tetragonoloba*. Its cork is thin and soft and its wood is hard. The heartwood is used to produce dyes that are red and purple. The histological stain called haematoxylin is produced from this species. Brazilwood tree *Caesalpinia echinata* is similar to the previous tree but smaller and with red or purple flowers. The wood is also used to produce a red or purple dye. Its fruit is reddish and is used to produce a yellow dye. In Central and South America dyes are produced from two species related to this species, indigo from *Indigofera suffruticosa* and Natal indigo from *Indigofera arrecta*. The Cockspur Coral Tree *Erythrina crista-galli* is one of many leguminosae used as ornamental plants. In addition, it is the National Flower of Argentina and Uruguay. Legumes have been used as ornamental plants throughout the world for many centuries. Their vast diversity of heights, shapes, foliage and flower colour means that this family is commonly used in the design and planting of everything from small gardens to large parks.

Chapter 2 : Preliminary List of the Leguminosae in Northeastern Brazil, César, Juchum, Lewis

The book Preliminary List of the Leguminosae in Northeastern Brazil, Edgley A. Cesar, Fabricio S. Juchum, and Gwilym Lewis is published by Royal Botanic Gardens, Kew.

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Lista preliminar da famÃ-lia leguminosae na regiÃ£o nordeste do Brasil = Preliminary list of the leguminosae in Northeastern Brazil.

Chapter 6 : Royal Botanic Gardens, Kew [WorldCat Identities]

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Preliminary List of the Cyperaceae in Northeastern Brazil is the third title to be published in the series Repatriation of Kew Herbarium Data for the Flora of Northeastern Brazil. Between and , Cyperaceae specimens were examined and the information epatriated.

Chapter 8 : Edgley A Cesar | Natural History Museum, London - www.nxgvision.com

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Chapter 9 : Fabaceae - Wikipedia

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