

Taxonomy and Traditional Medicinal Uses of Apocynaceae

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EDITORIAL

Apocynaceae (from Apocynum, Greek for "dog-away") is a family of flowering plants that includes trees, shrubs, herbs, stem succulents, and vines, commonly known as the dogbane family because some taxa were used as dog poison. Members of the family are native to the European, Asian, African, Australian, and American tropics or subtropics, with some temperate members. The former family Asclepiadaceae (now known as Asclepiadoideae) is considered a subfamily of Apocynaceae and contains 348 genera. A list of Apocynaceae genera may be found here.

Many species are tall trees found in tropical forests, but some grow in tropical dry (xeric) environments. Also perennial herbs from temperate zones occur. Many of these plants have milky latex, and many species are poisonous if ingested, the family being rich in genera containing alkaloids and cardiac glycosides, those containing the latter often finding use as arrow poisons. Some genera of Apocynaceae, such as *Adenium*, have milky latex apart from their sap, and others, such as *Pachypodium*, have clear sap and no latex.

Taxonomy and traditional medicinal uses on the family Apocynaceae growing throughout the Rajshahi district has been made. A total of 14 species under 12 genera belonging to the family Apocynaceae were collected and identified. Out of the total number of species *Allamanda cathartica* Linn, *Alstonia scholaris* (L.) R.Br. *Carissa carandas* Linn, *Catharanthus roseus* (L.) G. Don, *Ichnocarpus frutescens* (L.) R. Br, *Nerium oleander* Linn., *Plumeria alba* Linn, *Plumeria rubra* Linn, *Rauwolfia serpentina* Linn, *Tabernaemontana divaricata* Linn, *Thevetia peruviana* (Pers) K. Schum were common and *Cerbera odollam* Gaertn, *Holarhena antidysenterica* Linn, *Rauwolfia tetraphylla* Linn were rare species in the study area.

Several members of the family Apocynaceae have had economic uses in the past. Several are sources of important natural products—pharmacologic tool compounds and drug research candidates, and in some cases actual prescription drugs. Cardiac glycosides, which

affect heart function, are a ready example. Genera studied and known to contain such glycosides include *Acokanthera*, *Apocynum*, *Cerbera*, *Nerium*, *Thevetia* and *Strophanthus*. *Rauwolfia serpentina* (Indian snakeroot) contains the alkaloid reserpine, which has been used as an antihypertensive and an antipsychotic drug but its adverse effects limit its clinical use. *Catharanthus roseus* yields alkaloids used in the treatment of cancer. *Tabernaemontana iboga*, *Voacanga africana*, and *Tabernaemontana undulata* contain the alkaloid ibogaine, which is a psychedelic drug which may help with drug addiction, but which has significant adverse effects with ibogaine being both cardiotoxic and neurotoxic. Ajmalicine, an alkaloid found in *Rauwolfia spp*, *Catharanthus roseus*, and *Mitragyna speciosa*, is an antihypertensive drug used in the treatment of high blood pressure.

Many genera are grown as ornamental plants, including *Amsonia* (bluestar), *Nerium* (oleander), *Vinca* (periwinkle), *Carissa* (Natal plum), *Allamanda* (golden trumpet), *Plumeria* (frangipani), *Thevetia*, *Mandevilla* (Savannah flower), and *Adenium* (desert-rose). In addition, the genera *Landolphia*, *Carpodinus* and *Mascarenhasia* have been used as commercial sources of inferior rubber.

There are limited dietary uses of plants from this family. The flower of *Fernaldia pandurata* (common name: loroco) is edible. *Carissa* (Natal plum) produces an edible fruit, but all other parts of the plant are poisonous. The genus *Apocynum* was reportedly used as a source of fiber by Native Americans. The aromatic fruit juice from *Saba comorensis* (syn. *Landolphia comorensis*, the Bungo or Mbungo fruit) is used as a drink.

Finally, ethnopharmacologic and ethnotoxicologic uses are also known. The roots of *Tabernaemontana iboga* and certain *Voacanga* species have traditionally been used ceremonially as hallucinogens in Africa. The ibogaine-type alkaloids responsible for the psychoactivity of these plants have been studied with regard to the treatment of drug addiction. The juice of *Acokanthera* species such as *A. venenata* and the milky juice of the Namibian *pachypodium* have been used as poison for arrow tips.

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