Nigerian Journal of Ecology (2003) 5:46-49

ISSN: 1116-753X

The Distribution and Ecology of the West African Polygonaceae

A.E. Ayodele
Department of Botany and Microbiology, University of Ibadan, Ibadan.

(Accepted 4 July 2003)

ABSTRACT

The Polygonaceae is polymorphic but natural in floral characters. It occupies a wide range of habitats in West Africa. The lowland rainforests provide a suitable habitat for two species namely *Afrobrunnichia erecta* and *Symmeria paniculata* while five species are confined to the highlands- *Harpagocarpus snowdenii, Rumex bequeartii, R. abyssinicus, Persicaria nepalensis and P. setosula*. A few of the species e.g. *Polygonum plebeium, Oxygonum sinuatum* and *P. limbata* have a narrow distributional range being restricted to the drier regions of the Northern zones of Nigeria and Ghana usually in dry to wet river banks and ditches. Four species are widespread in the sub region. These are *Antigonon leptopus, P. senegalensis, P. attenuata,* and *P. salicifolia. Persicaria senegalensis forma albotomentosa* has a wider distribution than its other form *P. senegalensis forma senegalensis* occurring at sea level to as high as 1140m in the Cameroon Mountains and the Mambilla plateau.

Key words: Polygonaceae, Distribution, Ecology, West-Africa

INTRODUCTION

The Polygonaceae is a cosmopolitan family of herbs, shrubs, small trees or climbers characterised by simple leaves with sheating ochrear stipules (Hutchinson and Dalziel, 1954, Brummit, 1992). Most genera are restricted to the Northern temperate regions while others are tropical or subtropical (Heywood, 1978).

Recent studies on the family in West Africa showed that it is represented by eight genera and about twenty taxa (Ayodele, 2000). The family is polymorphic but natural in floral characters. However, until recently, it was poorly known in the subregion and this accounts for the various mis-identifications of some taxa and the poor delimination of species boundaries. The family is economically important as sources of edible fruits e.g. *Coccoloba uvifera* Linn. and *Fagopyrum esculentum* Moench. Some species of *Persicaria* Mill. are used as ornamentals as well as in medicine (Heywood, 1978). The roots of *Rumex abyssinicus* Jacq. mixed with water are used in the treatment of migraine, swellings and general pains (Abbink, 1995). Moreover, the roots and leaves of *Oxygonum sinuatum* (Meissn.)Dammer are used to treat skin infections, amoebiasis and fever (Iwu, 1993). This paper discusses the distribution and ecology of this relative taxonomically difficult group as a contribution to its ongoing revision in the sub-region.

MATERIALS AND METHODS

Specimens of the family Polygonaceae were studied in the following herbaria: Forestry Research Herbarium (FHI), Ibadan, University of Lagos Herbarium (LUH), Herbarium of the Department of Botany and Microbiology, University of Ibadan (UIH) and Herbarium of the Department of Botany, Obafemi Awolowo University (IFE). Field studies and collections were made during trips to various parts of the country including Lagos, Ibadan, Ago-Iwoye, Ijebu-Igbo and Akure, all in the Southwest and Kakara, Kusuku and Tapari in the Mambilla Plateau, Northeastern Nigeria. Data generated during the study of specimens in the herbaria and notes taken during field trips provided useful information for this paper.

RESULTS

West African lowland rainforests provide a suitable habitat for only two species of the Polygonaceae. *Afrobrunnichia erecta* Hutch. & Dalz. is confined to the high forests of the Southwestern and Eastern Nigeria, Cote D'Ivoire

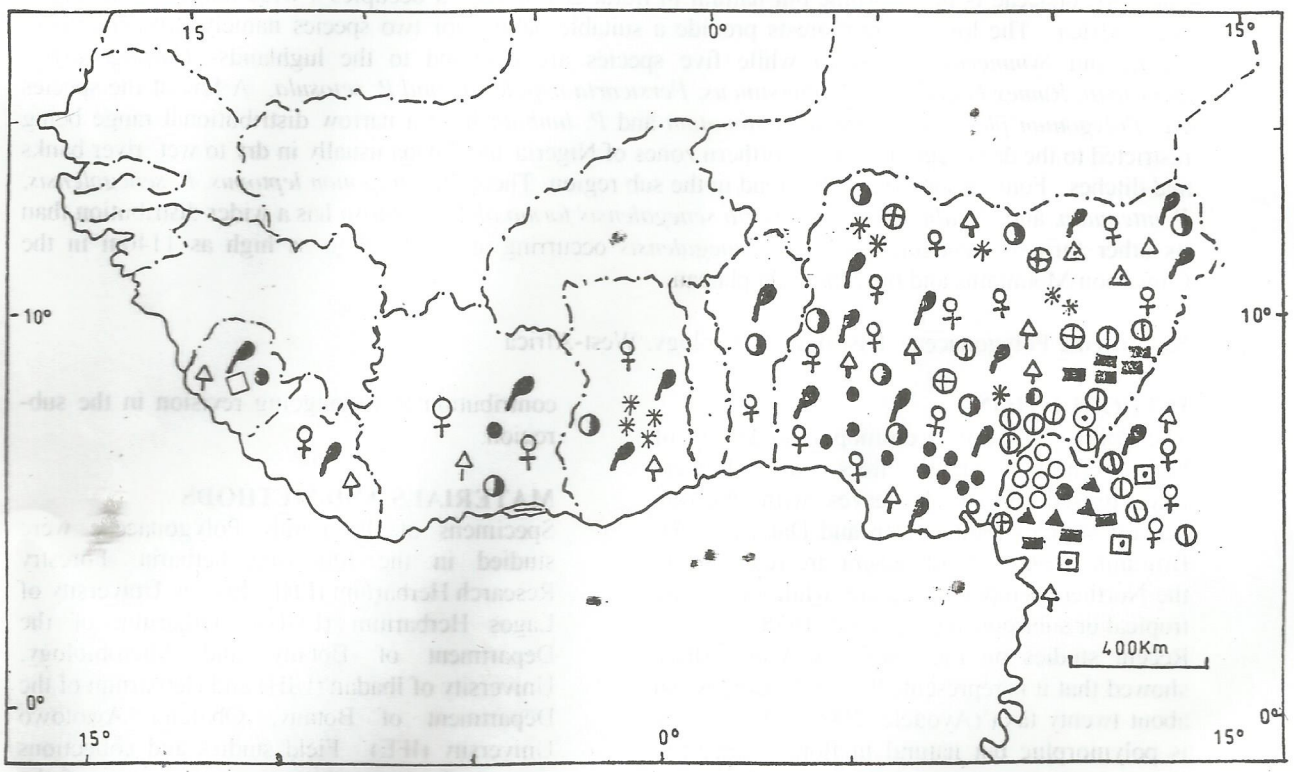

Fig. 1: Map showing the distribution of the Polygonaceae in West Africa.

KEY TO SYMBOLS

- ● *Afrobrunnichia erecta*
- △ *Oxygonum sinuatum*
- □ *Symmeria paniculata*
- ■ *Rumex abyssinicus*
- o *Rumex bequaertii*
- ▲ *Harpagorapus snowdenii*
- * *Polygonum plebeium*
- ◐ *Persicaria nepalensis*
- ⊕ *Persicaria glomerata*
- ⊙ *Persicaria strigosa*
- ◬ *Persicaria limbata*
- ⊡ *Persicaria setosula*
- ♀ *Persicaria attenuata*
- ◤ *Persicaria senegalensis*
- ⍋ *Persicaria salicifolia*
- ◑ *Antigonon leptopus*

and Sierra Leone. *Symmeria paniculata* Benth. is recorded only from the forests in Sierra Leone and Senegal usually preferring river banks and alluvial soils. Five species are confined to the highlands. *Harpagocarpus snowdenii* Hutch. & Dalz and *Rumex bequaertii* De Wild are mainly in the Cameroon Mountains, the former reaching an altitude of about 2800m in moist soils, ditches and shades. *R. abyssinicus* extends from the high mountains of Gongola and Mambilla in the north eastern area of Nigeria to the Cameroon reaching up to about 2100m in forests, swamps and grasslands (Fig. 1). *Persicaria nepalensis* (Meissn.) Gross is the only species of the genus with an altitude of about 2850m and it is confined to the high mountain plateaus of Obudu and Mambilla in Southeastern and Northeastern Nigeria respectively and the Southwestern part of Cameroon near streams, in swamps and wet soils and in fields (Fig 1). *Persicaria setosula* (A.Rich.)K.L. Wilson occurs mainly on the mountains of the Cameroon (Fig 1) reaching a height of about 1320m in alluvial soils near streams.

Some of the West African taxa of the family have a narrow distributional range. *Polygonum plebeium R.Br* occurs in drier regions of the Northern zones of Nigeria and Ghana usually in dry to wet river banks and ditches (Fig 1). The few specimens of *O. sinuatum* and *P. fimbata* (Meissn.) Hara used in this study were recorded from Northern Nigeria occurring in grassland and swamps near streams respectively (Fig 1). *P. glomerata* S.Ortiz & J.A.R.Paiva is abundant on the Jos Plateau in the middle belt and Mambilla Plateau in North Eastern Nigeria but extends as far as the Gambia reaching an altitude of between 1050 – 1200m (Fig 1). *P. strigosa (R.Br) Gross* is more of an East African species but a single collection was made from the Mambilla Plateau in a river bank at an altitude of more than 1000m.

The remaining 4 species are widespread in the region. *Antigonon leptopus Hook. & Arn.* is cosmopolitan, usually cultivated as an ornamental on fences. *P. senegalensis* (Meissn.)Sojak *forma albotomentosa* (Graham) K.L.Wilson has the widest distribution occurring at sea level to as high as 1140m in the Cameroon Mountains and the Mambilla Plateau in North Eastern Nigeria. The species also occur in Ghana and Sierra Leone in marshes, swamps and river beds in alluvial soil. *P. attenuata (R.Br.)Sojak subsp. pulchra (Blume) K.L.Wilson* occupies regions of between about 450 – 1500m extending from Nigeria to the Cameroon, Ghana and Cote de Voire. *P. salicifolia (Brouss ex Willd.)Assenov subsp salicifolia* extends from Nigeria to Cameroon and Liberia but *P. salicifolia subsp. mambillensis* Ayodele is restricted to the Mambilla Plateau and the Cameroon Mountain. The species occur at sea level to as high as 2400m in swamps, river banks, moist and wet alluvial soils. The last of the taxa *P. senegalensis forma senegalensis* is more abundant in the South usually at sea level and rarely reaching an altitude of more than 1000m.

DISCUSSION

The West African Polygonaceae occupies a wide range of habitats. Two species are exclusively lowland and restricted to the high forests of the south. These species are forest lianas (*C. erecta*) and shrubs to small trees (*S. paniculata*) usually by river banks. Five species are montane, restricted to the highland. It is evident from the study that *P. senegalensis forma albotomentosa* has a wider distribution than *P. senegalensis forma sengegalensis* especially on the highlands. Both were hitherto known to occupy almost the same distributional range.

The same applies to *H. snowdenii* which was earlier believed to be restricted to East Africa. *P. strigosa* and *O. sinuatum* are represented by one collection each from the sub-region in the Forestry Research Herbarium, Ibadan. Both collections were made in 1966 and 1980 respectively. The field trip to Mambilla Plateau from where *P. strigosa* was earlier collected did not produce any positive result. Thus, the incidence of both species may be attributed to accidental introduction to the Wumuri grasslands in Northern Nigeria and Gembu, Mambilla Plateau by Fulani Cattle Merchants who trade extensively in these areas.

REFERENCES

Abbink, J. (1995). Medicinal and ritual plants of the Ethiopian Southwest: an account of recent research. *The Indigenous Knowledge and Development Monitor* 3(2): 6 – 8.

Ayodele, A.E. (2000). Systematic Studies in the family Polygonaceae. Unpublished Ph.D. thesis, University of Lagos, Lagos. 241 pp.

Brummitt, R.K. (1992). *Vascular Plant Families and Genera*. Royal Botanic Gardens, Kew, England. 804pp.

Heywood, V.H. (1978). *Flowering Plants of the World*. Oxford University Press, Oxford. 336pp.

Hutchinson, J. and Daziel, J.M. (1954) *Flora of West Tropical Africa Vol. I.* Crown Agents for Overseas Government and Administrations. London. 295pp.

Iwu, M.M. (1993) *Handbook of African medicinal plants.* CRC Press. London. 435pp.