

Zeitschrift: Berichte des Geobotanischen Institutes der Eidg. Techn. Hochschule, Stiftung Rübel

Herausgeber: Geobotanisches Institut der Eidg. Techn. Hochschule, Stiftung Rübel

Band: 55 (1989)

Artikel: Materials of a pharmaco-botanical excursion in Papua New Guinea = Material einer pharmako-botanischen Exkursion in Papua Neuguina

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DOI: <https://doi.org/10.5169/seals-377757>

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Ber.Geobot.Inst.ETH, Stiftung Rübel, Zürich 55 (1989), 252-259

Materials of a pharmaco-botanical excursion in Papua New Guinea

Material einer pharmako-botanischen Exkursion
in Papua Neuguina

by

Matthias BALTISBERGER, Clemens A.J. ERDELMEIER and Topul RALI

1. INTRODUCTION

In 1988 C. Erdelmeier and his group started a project (funded by the Swiss National Science Foundation) to investigate plants used in traditional medicine of the people of Papua New Guinea (P.N.G.). For these chemical investigations the desired species had to be collected in sufficient quantities. Indications about promising species could be taken from the extensive investigations done by Holdsworth of the University of Papua New Guinea in the years 1970-1988. Holdsworth and his collaborators have collected and identified several hundred

plants used as traditional medicines in different areas of Papua New Guinea. Local and botanical names, localities, details of their uses and the plant part used were published by him in a series of papers:

HOLDSWORTH and HEERS 1971, HOLDSWORTH 1973a,b, HOLDSWORTH and LONGLEY 1973, HOLDSWORTH and N'DRAWII 1973, HOLDSWORTH and TRINGEN 1973, HOLDSWORTH 1974a,b, HOLDSWORTH and FARNWORTH 1974, HOLDSWORTH et al. 1974, HOLDSWORTH 1975a,b, HOLDSWORTH and GIHENO 1975, HOLDSWORTH et al. 1975, HOLDSWORTH 1977, HOLDSWORTH et al. 1978, HOLDSWORTH 1980ab, HOLDSWORTH et al. 1980a,b, HOLDSWORTH and LACANIANTA 1981a,b, HOLDSWORTH and WAMOI 1981, HOLDSWORTH 1982, HOLDSWORTH and MAHANA 1982, HOLDSWORTH and WAMOI 1982, HOLDSWORTH et al. 1982, HOLDSWORTH and MAHANA 1983, HOLDSWORTH et al. 1983, HOLDSWORTH 1984, HOLDSWORTH and DAMAS 1986, HOLDSWORTH and SAKULAS 1986, HOLDSWORTH 1987a,b,c, HOLDSWORTH and KERENGA 1987a,b, HOLDSWORTH and SAKULAS 1987, BALUN and HOLDSWORTH 1988, HOLDSWORTH and CORBETT 1988, HOLDSWORTH and RALI (in prep.).

This paper contains our itinerary and a list of the plant material collected on our field trip in Papua New Guinea in September 1988. In further papers it could serve as a reference relative to the material used.

ACKNOWLEDGEMENTS

We want to thank the Swiss National Science Foundation for supporting our project. We thank the following people for their help during our trip in Papua New Guinea: Esther, Marianne and Stephan Baltisberger (Zürich), Father Norman Cruttwell (Goroka), Debbie and Herbert Eisele (Kabiufa Highschool, Goroka), Paul Katik (National Herbarium, Lae) and Max Kuduk (UPNG Herbarium, Port Moresby). We thank Dr. M.M.J. van Balgooy (Leiden) for checking the determinations of the specimens.

2. ITINERARY

For the reason of limited available time to spend in Papua New Guinea we tried to collect the desired plant material at more or less easily accessible localities. Three areas have been visited: Port Moresby, the Highlands, and Lae (Fig. 1).

- 31.8.-2.9. flight from Zürich (Switzerland) via Singapore to Port Moresby (Papua New Guinea)
- 3.-4.9. acclimatization and sightseeing
- 5.9. first short excursion to Vanapa (N of Port Moresby)
- 6.9. excursion along the road to Bereina (N of Port Moresby)
- 7.9. excursion to Sogeri (E of Port Moresby)
- 8.9. organization of flights (Port Moresby-Goroka-Lae- Port Moresby), working in the herbarium (UPNG)
- 9.9. excursion along the road to Rigo (SE of Port Moresby)
- 10.9. second excursion to Sogeri

- 11.9. free time: swimming and diving at Idler's Bay (N of Port Moresby)
- 12.9. preparations for the flight to Goroka
- 13.9. flight to Goroka
- 14.9. excursion to the Mt. Gahavisuka-Park (N of Goroka)
- 15.9. drive over the Daulo Pass to Mt. Hagen
- 16.9. excursion to Tobobugu near Ialibu (SSW of Mt. Hagen)
- 17.9. sightseeing and working up the collected plant materials
- 18.9. drive to Goroka
- 19.9. flight to Lae
- 20.9. excursion in the region N of Wagan (ENE of Lae)
- 21.9. excursion along the road to Bulolo (SW of Lae)
- 22.9. excursion to Wagan (E of Lae)
- 23.9. excursion to Nadzab and Boana (NW of Lae)
- 24.9. working in the national herbarium (LAE) to identify collected specimens
- 25.9. flight back to Port Moresby
- 26.-28.9. working up the collected plant materials (herbarium specimens, dried leaves for chemical investigations) and preparing bulk materials for shipment to Switzerland; and then, much too early: back to Europe

Further informations about our journey in Papua New Guinea can be taken from BALTISBERGER and ERDELMEIER (1989) and ERDELMEIER et al. (1989).

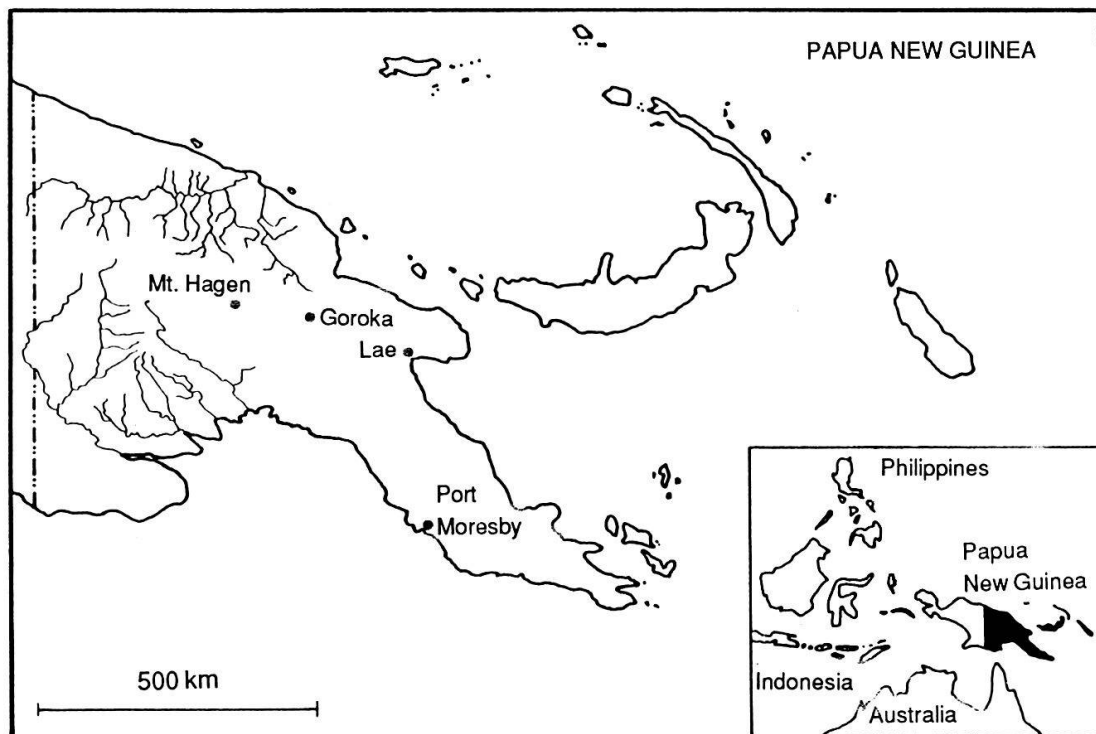


Fig. 1. Map of Papua New Guinea - *Karte von Papua Neuguinea.*

3. LIST OF COLLECTED PLANT MATERIAL

Herbarium specimens have been taken from all species collected for chemical investigations. The determinations of each specimen has been checked up by M.M.J. van Balgooy (Rijksherbarium, Leiden, Netherlands). Complete sets of duplicates are deposited in the following herbariums (abbreviations of the herbariums according to HOLMGREN et al. 1981): L (Leiden, Netherland), LAE (Lae, Papua New Guinea), UPNG (Port Moresby, Papua New Guinea), ZT (ETH Zürich, Switzerland). Another incomplete set of duplicates is still available.

For the chemical investigations leaves of the respective species have been collected, air-dried and shipped to Zürich (Switzerland). The quantity of dried plant material is indicated in the following list.

The specimens are listed in the order of the collecting-numbers. The botanical names are followed by the geographical indications, the date of collection, and by the collectors names. EMB stands for Esther and Matthias Baltisberger, CE for Clemens Erdelmeier, and TR for Topul Rali.

- 11801 *Ficus septica* Burm. f. (*Moraceae*)
Kuriva, on the road from Port Moresby to Bereina, after Vanapa, about 40 km N of Port Moresby, Central Province; 10-20 m; 5.9.1988; leg. EMB, CE, TR and M. Kuduk. Dried material: 1.88 kg.
- 11802 *Tridax procumbens* L. (*Compositae*)
Roadside in the University Campus, Waigani, Port Moresby; ca. 50 m; 5.9.1988; leg. MB. No material for chemical investigation.
- 11803 *Kleinhovia hospita* L. (*Sterculiaceae*)
Gubuna near Kanosia Rubber Estate, on the road from Port Moresby to Bereina, after Lolorua, about 60 km N of Port Moresby, Central Province; 10-20 m; 6.9.1988; leg. EMB, CE, TR and M. Kuduk. Dried material: 1.97 kg.
- 11804 *Timonius timon* (Spreng.) Merr. (*Rubiaceae*)
On the road to Hisiu Beach, W of Lolorua, on the road from Port Moresby to Bereina, about 60 km N of Port Moresby, Central Province; 10-20 m; 6.9.1988; leg. EMB, CE, TR and M. Kuduk. Dried material: 2.41 kg.
- 11805 *Euphorbia heterophylla* L. (= *E. geniculata* Ortega; *Euphorbiaceae*)
Very frequent weed; Doa Rubber Estate, on the road from Port Moresby to Bereina, about 50 km N of Port Moresby, Central Province; 10-20 m; 6.9.1988; leg. EMB, CE, TR and M. Kuduk. Dried material: 1.57 kg.
- 11806 *Nauclea orientalis* L. (*Rubiaceae*)
Near Mariboi Rubber Estate, on the road from Port Moresby to Bereina, about 50 km N of Port Moresby, Central Province; 10-20 m; 6.9.1988; leg. EMB, CE, TR and M. Kuduk. No. 11806a from a flowering tree, no material for chemical investigation; No. 11806b young, not flowering tree, dried material: 5.22 kg.
- 11807 *Desmodium umbellatum* (L.) DC. (*Papilionaceae*)
On the road from Port Moresby to Rigo, between Gaire Beach and the turn-off to Barakau, about 25 km SE of Port Moresby, Central Province; 10-20 m; 9.9.1988; leg. EMB, CE, TR and M. Kuduk. Dried material: 3.81 kg.
- 11808 *Tridax procumbens* L. (*Compositae*)

- Very frequent weed on roadside; on the road from Port Moresby to Rigo, between Gaire Beach and the turn-off to Barakau; about 25 km SE of Port Moresby, Central Province; 10-20 m; 9.9.1988, leg. EMB, CE, TR and M. Kuduk. Dried material: 2.47 kg
- 11809 *Ficus opposita* Miq. (*Moraceae*)
On the road from Port Moresby to Rigo, at the turn-off to Tubusereia, about 25 km SE of Port Moresby, Central Province; 10-20 m; 9.9.1988; leg. EMB, CE, TR and M. Kuduk. Dried material: 3.23 kg.
- 11810 *Crassocephalum crepidioides* (Benth.) Moore (*Compositae*)
Frequent weed on roadside; Koitaki Rubber Estate near Sogeri, about 30 km E of Port Moresby, Central Province; 450-500 m; 10.9.1988; leg. MB, CE, TR and M. Kuduk. Dried material: 2.09 kg.
- 11811 *Ficus dammaropsis* Diels (*Moraceae*)
On the road to Mt. Gahavisuka-Park, N of Goroka, Eastern Highlands Province; 2100-2300 m; 14.9.1988; leg. EMB, EC and TR. Dried material: 2.86 kg.
- 11812 *Piper gibbilimum* C. DC. (*Piperaceae*)
On the road to Mt. Gahavisuka-Park, N of Goroka, Eastern Highlands Province; 2100-2300 m; 14.9.1988; leg. EMB, EC and TR. Dried material: 1.40 kg.
- 11813 *Eurya tigan* Sch. & Laut. (*Theaceae*)
On the road to Mt. Gahavisuka-Park, N of Goroka, Eastern Highlands Province; 2100-2300 m; 14.9.1988; leg. EMB, EC and TR. Dried material 2.79 kg.
- 11814 *Ficus adenosperma* Miq. (*Moraceae*)
Ronu, on the road from Goroka to Mt. Hagen, W of the Daulo Pass, 20 km W of Goroka, Eastern Highlands Province, ca. 1650 m; 15.9.1988; leg. EMB, EC and TR. Dried material: 3.77 kg.
- 11815 *Dichrocephala bicolor* (Roth) Schldl. (*Compositae*)
Frequent weed on roadside and disturbed ground; Tobobugu, NE of Ialibu, 60 km SSW of Mt. Hagen, Southern Highlands Province; ca. 2050 m; 16.9.1988; leg. EMB, CE and TR. Dried material: 1.46 kg.
- 11816 *Laportea decumana* (Roxb.) Wedd. (*Urticaceae*)
Pemburupi, NE of Tobobugu, NE of Ialibu, 60 km SSW of Mt. Hagen, Southern Highlands Province; ca. 2100 m; 16.9.1988; leg. EMB, CE and TR. Dried material: 1.11 kg.
- 11817 *Bidens pilosa* L. (*Compositae*)
Frequent weed on disturbed ground and in gardens; Mt. Hagen, Western Highlands Province; ca. 1750 m; 17.9.1988; leg. MB. No material for chemical investigation.
- 11818 *Villebrunea rubescens* Bl. (= *Oreocnide rubescens* [Bl.] Miq.; *Urticaceae*)
Gawam, N of Wagan, 20 km ENE of Lae, Morobe Province; 200-300 m; 20.9.1988; leg. EMB, CE, TR and P. Katik. Dried material: 2.7 kg.
- 11819 *Piper aduncum* L. (*Piperaceae*)
Gawam, N of Wagan, 20 km ENE of Lae, Morobe Province; 200-300 m; 20.9.1988; leg. EMB, CE, TR and P. Katik. Dried material: 1.86 kg.
- 11820 *Ficus botryocarpa* Miq. (*Moraceae*)
Gawam, N of Wagan, 20 km ENE of Lae, Morobe Province; 200-300 m; 20.9.1988; leg. EMB, CE, TR and P. Katik. Dried material: 1.8 kg.
- 11821 *Harmsioplanax harmsii* K. Sch. (*Araliaceae*)
Patep, near Mumeng, on the road from Lae to Bulolo, 40 km WSW of Lae, Morobe Province; ca. 650 m; 21.9.1988; leg. EMB, CE, TR and P. Katik.
no material for chemical investigation; this could be collected near Gain, on the road from Nadzab to Boana, 40 km NW of Lae, Morobe Province; ca. 850 m; 23.9.1988 (no herbarium specimen, because no plant was flowering).
- 11822 *Desmodium sequax* Wall. (*Papilionaceae*)
Patep, near Mumeng, on the road from Lae to Bulolo, 40 km WSW of Lae, Morobe

- Province; ca. 1050 m; 21.9.1988; leg. EMB, CE, TR and P. Katik. Dried material: 0.2 kg.
- 11823 *Ficus pachyrhachis* Laut. & Schum. (*Moraceae*)
Patep, near Mumeng, on the road from Lae to Bulolo, 40 km WSW of Lae, Morobe Province; ca. 950 m; 21.9.1988; leg. EMB, CE, TR and P. Katik. Dried material: 2.15 kg.
- 11824 *Aleurites moluccana* (L.) Willd. (*Euphorbiaceae*)
Near Gain, on the road from Nadzab to Boana, 40 km NW of Lae, Morobe Province; 150-200 m; 23.9.1988; leg. EMB, CE and P. Katik. Dried material: 2.12 kg.
- 11825 *Mangifera minor* Bl. (*Anacardiaceae*)
Near Gain, on the road from Nadzab to Boana, 40 km NW of Lae, Morobe Province; 200-250 m; 23.9.1988; leg. EMB, CE and P. Katik. Dried material: 3.08 kg.

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