



## The first checklist of macrofungi of mount Cameroon

Kinge TR<sup>1\*</sup>, Egbe EA<sup>2</sup>, Tabi EM<sup>2</sup>, Nji TM<sup>3</sup> and Mih AM<sup>2</sup>

<sup>1</sup>Department of Biological Sciences, Faculty of Science, University of Bamenda, P.O. Box 39, North West Region, Cameroon.

<sup>2</sup>Department of Botany and Plant Physiology, Faculty of Science, University of Buea, P.O. Box 63, South West Region, Cameroon

<sup>3</sup>Department of Sociology and Anthropology, Faculty of Social and Management Sciences, University of Buea, P.O. Box 63, South West Region, Cameroon

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### Abstract

Field studies were carried out in the Mount Cameroon Region, Cameroon between 2010 and 2012. A total of 520 samples of macrofungi were collected. As a result of field and laboratory studies, a checklist of 177 species of fungi belonging to 83 genera is presented. The Basidiomycetes had 163 species, while the Ascomycetes had 14 species. All the species identified are new records for the area.

**Key Words** – Cameroon – mushrooms – mycoflora – taxonomy

### Introduction

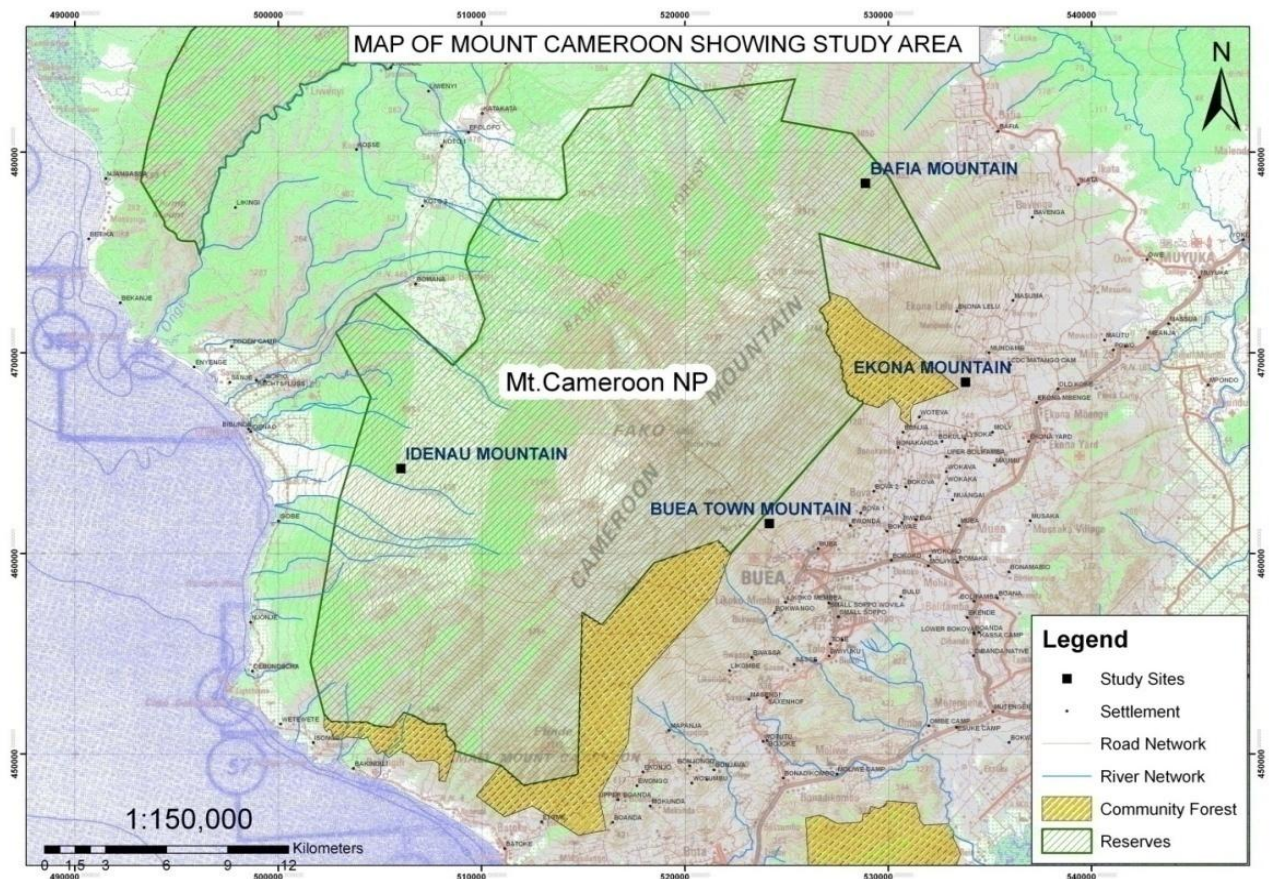
The Mount Cameroon Region is situated in the South West Region of Cameroon in Central Africa. The area extends from the Atlantic coast to the enormous Mount Cameroon, with an altitude of 4100 m (Bussmann 2006). Mount Cameroon is the highest mountain in West and Central Africa with an active volcano. The last two eruptions were recorded in 1999 and 2000. It is located between latitudes 3°57' to 4°27'N and longitudes 8°58' to 9°24'E (Suh et al. 2003). The peak is at 4°7'N and 9°10'E (Tchouto 1996). Due to the volcanic origin, the surrounding soil is rich in nutrients and provides high fertility for both natural vegetation and farmland (Fonge et al. 2005). The area has a humid tropical climate and the climatic pattern is modified by the topography from sea level to the top of the mountain. The annual rainfall on the mountain varies between 2085 and 10,000 mm. The mean annual temperature is about 25°C, and this decreases by 0.6°C per 100 m ascent (Fraser et al. 1998). The climate of the Mount Cameroon region is predominantly tropical, showing a definite rainy/dry season, with very high rainfall and high temperatures along the coastal belt. Rainfall and temperatures diminish and are moderated up the slopes and further inland. The indigenous inhabitants of the mountain belong to the Bakweri tribe.

The study of mycoflora in Cameroon can be divided into three periods: 1) the pioneer phase during which Bresadola and Hennings studied fungi from the southern and atlantic coast of Cameroon; 2) the period during European settlement when Hein, Berthet and Boidin studied fungi from the west, south and center regions of Cameroon; and 3) the postcolonial period during which

Colonge and Daniels, and Nunez and Daniels studied fungi from the Dja Biosphere Reserve, Watling, Hjortstam and Roberts studied fungi from the Korup National Park, Mosseebo and Antonin studied *Marasmius* species collected in the vicinity of Yaounde, in stands under human impacts and Douanla-Meli studied fungi from the Mbalmayo forest reserve in Cameroon (Douanla-Meli 2007). According to the relevant literature available to us, no studies on macrofungal flora have been carried out in the Mount Cameroon Region, even though the plants of Mount Cameroon have been extensively studied and documented (Cable & Cheek 1998). The purpose of this paper is to prepare the first check list of macrofungi of the Mount Cameroon Region.

## Materials & Methods

Specimens of macrofungi were collected during field trips (2010–2012) carried out on four flanks of Mount Cameroon Region: the windward side (Idenau), the leeward side (Ekona Lelu), the midward side (Buea Town) and the hind side of the mountain (Bafia) (Fig. 1). Collecting sites included undisturbed forest, secondary forests, cocoa farms, palm plantations, food crop fields, bush fallow and farmers' trails.



**Fig. 1** – Study sites for diversity and distribution studies of macrofungi in the Mount Cameroon Region.

The ecological and morphological characteristics of the fruiting bodies were recorded and they were photographed in their natural habitats. They were taken to the laboratory, dried and preserved in polyethylene bags containing silica gel crystals. As a result of macroscopic and microscopic investigations, they were identified with the help of Douanla-Meli (2007). The samples are kept in the University of Buea education facility.

## Results and Discussion

A total of 177 species in 83 genera were collected (Table 1). There were 163 species of Basidiomycetes and 14 species of Ascomycetes. The identified species belonged to 38 families of 15 orders. A majority of the fungi belonged to the Agaricales (87 species), followed by the Polyporales (32 species) while the Eurotiales, Nidulariales and Phallales were each represented by a single species. The most abundant family was the Polyporaceae with 21 species, followed by Marasmiaceae and Tricholomataceae represented by 18 and 17 species, respectively. Some of the mushroom species identified were used as food and in ethnomedicine (Kinge et al. 2011).

The heavy rainfall and high humidity in the region might have favoured the high number of macrofungi recorded. This study is the first documentation of macrofungi in the Mount Cameroon Region. Future investigations will certainly increase the number of fungal records and expand the reported species ranges throughout the area.

**Table 1** Checklists of macrofungi in Mount Cameroon Region

Species	Location
<i>Coprinus micaceus</i>	Idenau, Bafia
<i>Coprinus plicatilis</i>	Ekona
<i>Coprinus</i> sp.	Bafia
<i>Crepidotus mollis</i>	Bueatown
<i>Crepidotus subsphaerosporus</i>	Bueatown
<i>Cyathus striatus</i>	Bueatown
<i>Daedaleopsis confragosa</i>	Idenau, Bafia, Ekona
<i>Daldinia concentric</i>	Bafia, Bueatown, Ekona
<i>Dictyophora indusiata</i>	Idenau, Bueatown, Bafia
<i>Echinochaete</i> sp.	Bueatown
<i>Entoloma</i> sp.	Bueatown
<i>Flammulina velutipes</i>	Bafia
<i>Flavolus brasiliensis</i>	Idenau, Bafia
<i>Ganoderma applanatum</i>	Ekona, Bueatown, Idenau
<i>Ganoderma lucidum</i>	Bafia, Bueatown
<i>Ganoderma rywardenii</i>	Idenau, Bueatown, Ekona
<i>Ganoderma zonatum</i>	Idenau
<i>Ganoderma</i> sp.	Bafia, Ekona
<i>Geastrum mirabile</i>	Bafia, Bueatown
<i>Geastrum saccatum</i>	Ekona, Bueatown
<i>Geastrum triplex</i>	Ekona
<i>Gerronema beninensis</i>	Idenau
<i>Guepinia spathularia</i>	Bueatown
<i>Haploporus odorus</i>	Bueatown
<i>Hygrocybe</i> sp.	Ekona, Bueatown
<i>Hygrophorus</i> sp.	Bueatown, Idenau
<i>Hypholoma marginatum</i>	Ekona
<i>Inonotus radiates</i>	Bafia, Idenau, Ekona
<i>Laccaria amethystine</i>	Bafia
<i>Laccaria laccata</i>	Idenau
<i>Lactarius intermedius</i>	Bueatown
<i>Lentinus sajor-caju</i>	Idenau
<i>Lentinus</i> sp.	Bafia
<i>Lentinus tigrinus</i>	Idenau
<i>Lenzites acuta</i>	Bafia
<i>Lenzites betulina</i>	Bafia, Ekona, idenau
<i>Lenzites</i> sp.	Idenau, Ekona
<i>Lenzites warnieri</i>	Ekona
<i>Lepiota cristata</i>	Bafia, Bueatown
<i>Lepista</i> sp.	Ekona

<b>Species</b>	<b>Location</b>
<i>Lycoperdon pyriforme</i>	Idenau
<i>Lyophyllum</i> sp.	Bueatown
<i>Macrolepiota rhacodes</i>	Bafia
<i>Marasmiellus chamaecyparidis</i>	Bafia, Ekona
<i>Marasmiellus ramealis</i>	Idenau
<i>Marasmiellus vaillantii</i>	Idenau
<i>Marasmius candidus</i>	Ekona
<i>Marasmius cohaerens</i>	Ekona
<i>Marasmius graminum</i>	Ekona
<i>Marasmius maximus</i>	Bueatown, Ekona
<i>Marasmius ohshimae</i>	Ekona
<i>Marasmius oreades</i>	Ekona, Bafia
<i>Marasmius pulcherripes</i>	Bafia, Ekona
<i>Marasmius pura</i>	Idenau
<i>Marasmius purpureostriatus</i>	Bafia
<i>Marasmius rotula</i>	Bafia
<i>Marasmius scorodoni</i>	Bafia
<i>Marasmius siccus</i>	Bafia, Idenau
<i>Marasmius undatus</i>	Ekona, Bowntown
<i>Micromphale</i> sp.	Ekona
<i>Microporus affinis</i>	Bueatown
<i>Mycena galopus</i>	Bafia
<i>Mycena haematopus</i>	Ekona
<i>Mycena pura</i>	Ekona, Bueatown
<i>Mycena rhenana</i>	Idenau
<i>Mycena stipata</i>	Ekona, Bueatown
<i>Mycena tenerrima</i>	Ekona, Bafia
<i>Nigroporus vinosus</i>	Bueatown, Bafia
<i>Nothopanus hygrophanus</i>	Bueatoiwaw
<i>Oudemansiella canarii</i>	Bafia, EkoBafiana, Bueatown
<i>Oudemansiella radicata</i>	Idenau
<i>Oudemansiella</i> sp.	Ekona
<i>Oxyporus corticola</i>	Idenau, Ekona
<i>Panellus stipiticus</i>	Bueatown
<i>Panus fulvus</i>	Ekona
<i>Panus</i> sp.	Bafia
<i>Penicillioopsis</i> sp.	Bafia
<i>Perenniporia ochroleuca</i>	Idenau, Bueatown
<i>Pezziza badida</i>	Ekona
<i>Pezziza</i> sp.	Bafia
<i>Phellinus gilvus</i>	Bueatown
<i>Phellinus igniarius</i>	Bueatown
<i>Phellinus noxius</i>	Idenau, Ekona
<i>Phellinus</i> sp.	Ekona
<i>Phellinus xeranticus</i>	Idenau, Bueatown, Bafia
<i>Phillipsia domingensis</i>	Bafia, Bueatown
<i>Pholiota highlandensis</i>	Bueatown
<i>Phylloporus tenuipes</i>	Idenau
<i>Plectania nannfeldtii</i>	Ekona
<i>Pleurotus flabellatus</i>	Idenau, Ekona
<i>Pleurotus luteoalbus</i>	Bueatown, Bafia, Ekona
<i>Pleurotus pulmonarius</i>	Bueatown
<i>Pleurotus squarrosulus</i>	Idenau, Bafia
<i>Pleurotus tuberregium</i>	Bueatown
<i>Polyporus tenuiculus</i>	Bueatown
<i>Psathyrella</i> sp.	Bueatown
<i>Psathyrella spadiceogrisea</i>	Bueatown
<i>Pycnoporellus fulgens</i>	Idenau
<i>Ramaria fennica</i>	Bueatown
<i>Ramaria ochraceovirens</i>	Bueatown

Species	Location
<i>Ramaria pallid</i>	Idenau, Bueatown
<i>Rigidoporus lineatus</i>	Idenau
<i>Rigidoporus microporus</i>	Idenau, Bafia, Ekona
<i>Russula acriannulata</i>	Ekona
<i>Russula anthracina</i>	Bafia, Ekona
<i>Russula cosobrina</i>	Bueatown
<i>Russula earlei</i>	Idenau
<i>Russula emetic</i>	Bueatown
<i>Russula gracillima</i>	Bueatown
<i>Russula luteotacta</i>	Bueatown
<i>Schizophyllum commune</i>	Bafia
<i>Scleroderma</i> sp.	Idenau
<i>Scutellinia stecullata</i>	Bafia, Idenau, Bueatown
<i>Termitomyces medius</i>	Bafia
<i>Termitomyces</i> sp.	Bafia
<i>Trametes cervina</i>	Bafia
<i>Trametes elegans</i>	Idenau, Bafia, Ekona
<i>Trametes pubescens</i>	Bueatown
<i>Trametes</i> sp.	Bafia
<i>Trametes versicolor</i>	Bafia, Ekona, Idenau, Bueatown
<i>Tremella fuciformis</i>	Bafia, Ekona
<i>Tremella mesenterica</i>	Ekona
<i>Tremella</i> sp.	Idenau
<i>Tricholoma</i> sp.	Bueatown
<i>Tricholoma ustale</i>	Idenau
<i>Vascellum pretense</i>	Bafia
<i>Volvariella volvacea</i>	Idenau, Bafia
<i>Xeromphalina tenuipes</i>	Idenau
<i>Xylaria carpophila</i>	Idenau, Bafia, Ekona, Bueatown
<i>Xylaria hypoxylon</i>	Idenau, Bafia
<i>Xylaria polymorpha</i>	Idenau, Bafia, Bueatown
<i>Xylaria</i> sp.	Idenau, Bueatown
<i>Xylaria tuberoides</i>	Ekona

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## References

- Bussmann RW. 2006 – Vegetation zonation and nomenclature of African Mountains—an overview. *Lyonia* 11, 41–66.
- Cable S, Cheek M. 1998 –The Plants of Mount Cameroon: A Conservation Checklist. Royal Botanic Gardens Kew, 279pp.
- Douanla-Meli C. 2007- Fungi of Cameroon: ecological diversity with emphasis on the taxonomy of non-gilled Hymenomycetes from the Mbalmayo Forest Reserves. *Bibliotheca Mycologica*, 410pp
- Fonge BA, Yinda GS, Focho DA, Fongod AGN, Bussmann RW. 2005 – Vegetation and soil status on an 80-year-old lava flow of Mt. Cameroon, West Africa. *Lyonia* 8, 17–39.
- Fraser PJ, Hall JB, Healey JR. 1998 – Climate of the Mount Cameroon Region, long and medium term rainfall, temperature and sunshine data. 56p, (unpl), SAFS, University of Wales Bangor, MCP-LBG, Limbe.
- Kinge TR, Tabi EM, Mih AM, Egbe EA, Njouonkou LA, Nji, TM. 2011 – Ethnomycology studies of macro-fungi (mushrooms) in the Mount Cameroon Region. *International Journal of Medicinal Mushroom* 13, 299–305.

- Suh CE, Sparks RSJ, Fitton, JG, Ayonghe SN, Annen C, Nana R, Luckman A. 2003 – The 1999 and 2000 eruptions of Mt. Cameroon; eruption, behaviour and petrochemistry of lava. *Bulletin of Volcanicity* 65, 267–281.
- Tchouto P. 1996 – Forest Inventory Report of the proposed Etinde Rainforest Reserve. Mount Cameroon Project, S. W. P. Cameroon.