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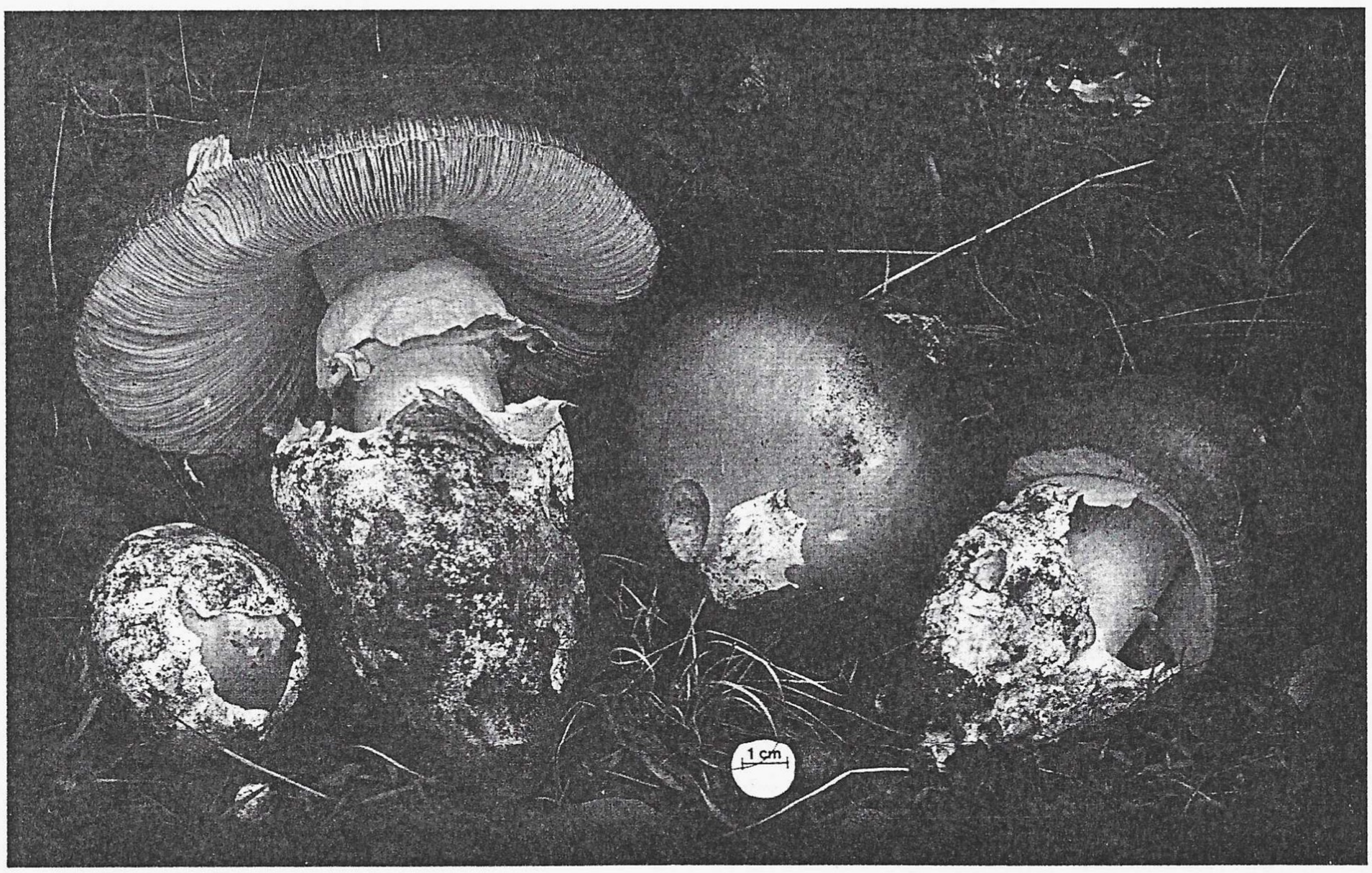

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PHENOLOGY OF LIGNICOLOUS *BASIDIOMYCETES* FROM LAING ISLAND (PAPUA NEW GUINEA)

CASTILLO, G. & V. DEMOULIN

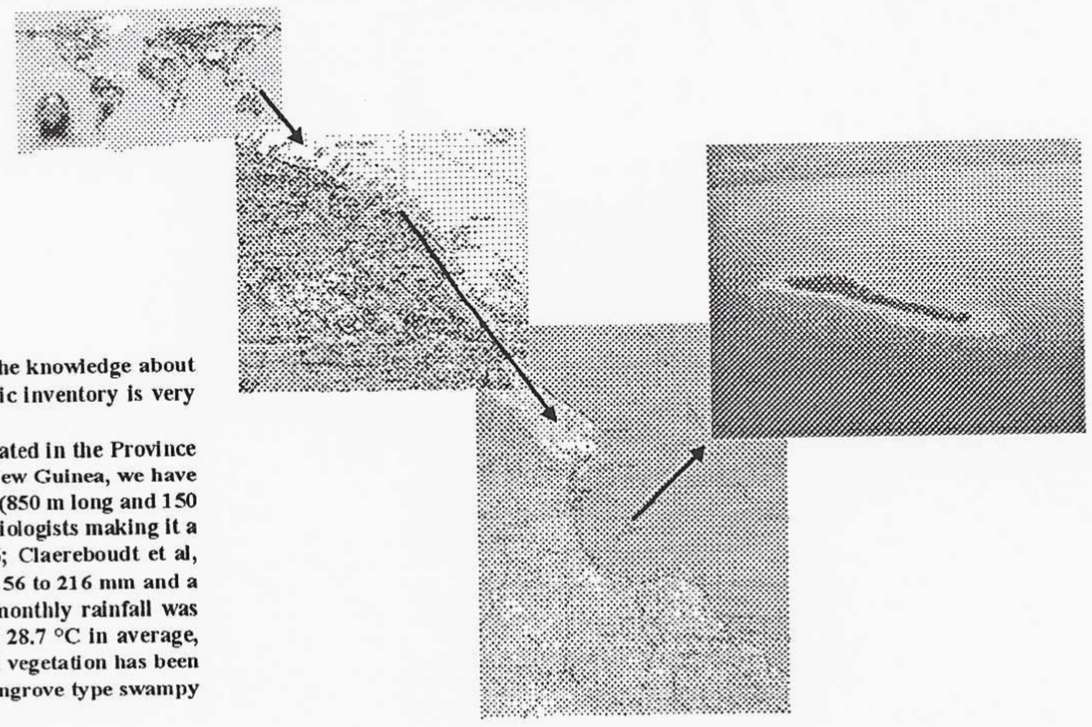
Université de Liège, Institut de Botanique (B.22), Service d'Algologie, de Mycologie et de Systématique Expérimentale, Sart-Tilman, B-4000 Liège, Belgium.

In the framework of a study of wood-inhabiting fungi on Laing Island, a small coral island located on the northern coast of Papua New Guinea, we have established a phenological table of the 96 taxa of encountered *Basidiomycetes*. Within six species presenting large phenological amplitude, two groups can be distinguished. On the one hand a group of species (*Hexagonia tenuis, Polyporus philippinensis* and *Microporus xanthopus*) with narrow ecological amplitude restricted to dense vegetation cover and thus growing in an environment buffered against desiccation and on the other hand a group of species (*Pycnoporus sanguineus. Schizophyllum commune* and *Trametes scabrosa*) with a very large ecological amplitude very resistant to desiccation. Furthermore. a large number of species is also found sporadically, which enables to draw some conclusions concerning their phenology.

Phenology of lignicolous Basidiomycetes from Laing Island (Papua New Guinea)

G. CASTILLO & V. DEMOULIN

Département de Botanique (B.22) Sart-Tilman
Service d'Algologie, de Mycologie et de Systématique Expérimentale
Université de Liège
B-4000 Liège, Belgique.



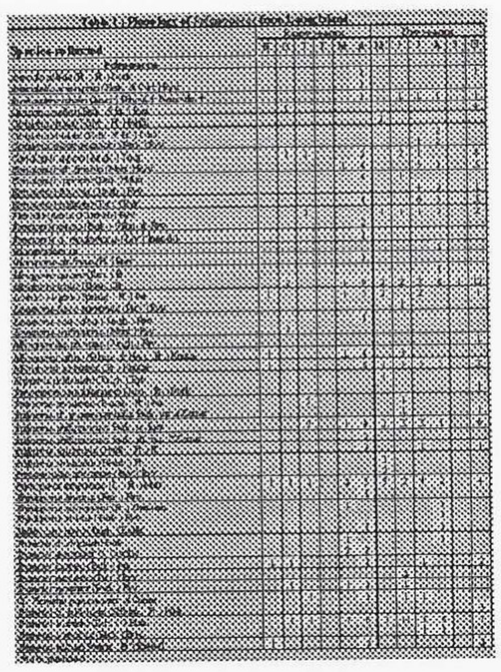
Introduction

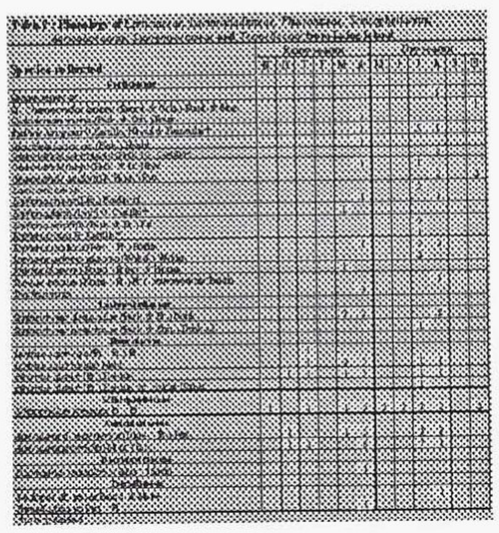
In tropical regions, where climate is favorable for the fast growth of wood-inhabiting fungi, the knowledge about there organisms is still scarce .This is particularly the case for Southeast Asia, where the taxonomic inventory is very incomplete.

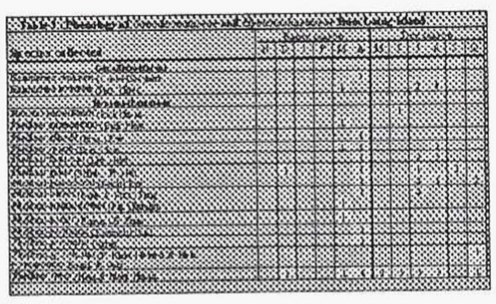
In the framework of a study of wood-inhabiting fungi on Laing island, a small coral island located in the Province of Madang, in bay of Hansa (UTM BR 6338, 4° 10 ' S / 144° 52 ' E) on the northern coast of Papua New Guinea, we have established a phenological table of the 96 taxa of encountered Basidiomycetes. This small coral island (850 m long and 150 m of large) was the seat of the King Leopold III Biological Station and as such is studied by several biologists making it a model ecosystem for the tropical coastal biota of the Indo-Pacific. The climate (Bouillon et al, 1986; Claereboudt et al, 1990) presents a rainy season, typically from November to April with a mean monthly rainfall from 156 to 216 mm and a dry season from May to October with a mean monthly rainfall from 49 to 109 mm. The average monthly rainfall was 129.6 mm during the period 1978 to 1985. The temperature fluctuates little during the year and is 28.7 °C in average, reaching 32.5° C during the day and 29.5 °C during the night (extremes 34 °C and 22 °C). Terrestrial vegetation has been mapped by De Sloover (1992) and presents three main types: beach vegetation, coastal forest and mangrove type swampy forest.

Materials and Methods

An inventory of all lignicolous Basidiomycetes sampled since 1980 on the island is presented in tables 1,2 and 3. All fungi were sampled by the members of the laboratory of mycology of university of Liège, J. Lambinon, V. Demoulin, A. Nihoul and G. Castillo (herbarium: LG) and by the membres of the systematic botany laboratory of the university of Gent, P. Goetghebeur, E. Quanten and P. Van Der Veken (herbarium: GENT).







Results and discussion

In the 506 collections of lignicolous Basidiomycetes, 96 taxa were identifiedamong which 50 Polyporaceae, 18 Corticiaceae, 14 Hymenochaetaceae, 4 Pleurotaceae, 2 Auriculariaceae, 2 Ganodermataceae, 2 Tremellaceae, 2 Lachnocladiaceae, 1 Dacrymycetaceae and 1 Schizophyllaceae.

On the basis of the phenological data, it can be said 6 species (which represent 33 % of the collection) present a large phenological amplitude and distribute themselves in two groups. On the one hand a group of species with a narrow ecological amplitude restricted to dense vegetation cover and, as shown by Castillo & Demoulin (1994), thus growing in an environment buffered against desiccation (*Hexagonia tenuis*, *Microporus xanthopus* and *Polyporus philippinensis*) and on the other hand a group of species (*Pycnoporus sanguineus*, *Trametes scabrosa* and *Schizophyllum commune*) with a very large ecological amplitude extremely resistant to the desiccation. These 6 species are the most often collected. For the first group, we have 38 colections for *Hexagonia tenuis*, 23 for *Microporus xanthopus* and 21 for *Polyporus philippinensis*, which represents 16.2 % of the total collect. For the second group, we have 46 collections for *Trametes scabrosa*, 23 for *Pycnoporus sanguineus* and 16 for *Schizophyllum commune*, which represents 16.8 % of collections.

For the other findings, conclusions are difficult to make. Indeed, too many factors seem to be implied in the frequency of collection so that it is difficult to interpret the occurrence of the least frequent collected species.

There seems to be a bias bound to the presence or not of collectors on the site. Thus, the column of the month of February is without any collections, and the column of the month of September only has one collections. In fact, there were only very few plant collecting activities in Laing Island during these months. It is necessary to also take into account when a carpophore is collected that, it can be dead since a certain time, the date of its collection not being then representative of its phenology.

In spite of all these factors, it is possible to make some interesting observations.

To the first group of 6 species with a large phenological amplitude, it would probably be possible to associate 7 other species whose collections are less well distributed in the time, probably because they are less frequent. These are *Coriolopsis aspera* (15 collections), *Lenzites elegans* (12 collections), *Trametes lactinea* (6 collections), *Lentinus squarrosulus* (10 collections), *Pleurotus djamor* (8 collections), *Auricularia* cf. *mesenterica* (15 collections) and *Auricularia polytricha* (18 collections).

30 species have only been met in the dry season, but met too occasionally, 1 or 2 times, so that no conclusions can be drawn concerning their phenology.

Nevertheless, there are three exceptions. *Coriolopsis floccosa* has been met 7 times from July to October, what would let suppose that it is a typical species of the dry season. *Ceriporia xylostromatoides* met 3 times *and Grammothele setulosas* met 4 times, are probably two dry season species, less frequent than *Coriolopsis floccosa*.

17 species have been met only in the rainy season, with two exceptions near, all at the end of the season. But again, generally 1 or 2 collections were realised for the majority of species. 3 collections for *Cystostereum murrai* and *Trechispora sp*, and 6 collections for *Trametes demoulinii* in a very short time lapse (Castillo, 1994). The two exceptions are *Lentinus sajor-cajus* met once in January and *Loweporus tephroporus* met once in December. These two species have been met too occasionally to affirm that these two species are characteristic for the rainy season.

13 species have been met in the dry season with a beginning of appearance at the end of the rainy season.

It is remarkable to make that no species collected several times is restricted to rainy season, whereas some species seem to prefer the dry season. It is true that there was a better prospecting during the dry season (majority of missions in July and August), but the observations lead us to consider that the rainy season is probably better for the vegetative development, the end of this season and the dry season would be more favorable for fruitbody production.

The Ganodermataceae and the Hymenochaetaceae, except *Inonotus patouillardii*, have been separated voluntarily from the previous observations. These species being perennial, they can be met in all season. It is necessary to notice that *Phellinus senex* is a species very frequently met on the island (42.3% of collections of Hymenochaetaceae).

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