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Diversity of Boletaceae (Boletales) at Pa Hin Ngam National Park in Chaiyaphum Province.

Nootcharee Doungsin[1], Itsarapong Voraphab[1]*, Natjariya Sutijaroenwong[1], Kotchapan Saengpitak[1], Panrada Jangsantear[1], Phanin Sintawarak[1], Winanda Himaman[1], Baramee Sakolrak[1] and Kittima Duengkae[1]

[1]Forest Entomology and Microbiology Group, Forest and Plant Conservation Research Office, Department of National Parks, Wildlife and Plant Conservation, 61 Phahonyothin Road, Chatuchak, Bangkok 10900, Thailand.

* Corresponding author: itsarapong.dnp@gmail.com

Introduction

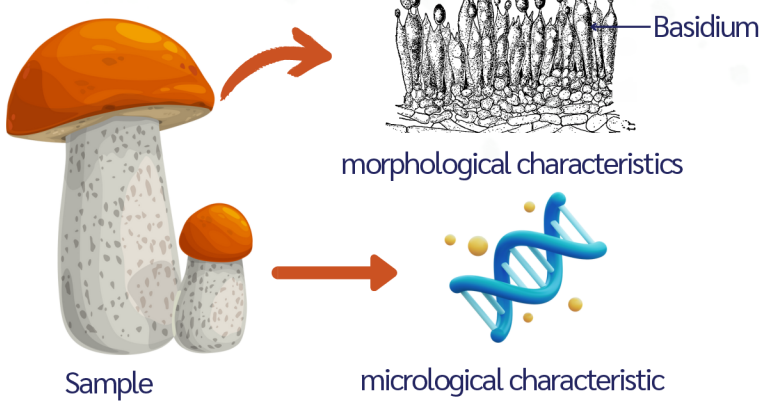
Mushrooms in the family Boletaceae has been classified as a renewable and replenishable resource, comprises of ectomycorrhizal fungi, which play a crucial role in enhancing the ability of plants to absorb nutrients from the soil by forming symbiotic relationships with plant's roots. Additionally, the Boletaceae holds significant value in terms of nutrition, medicine, agriculture, and the economy. There are necessary to study for provide information on the sustainable use of wild edible mushrooms. The protected forest is known for diverse natural resources, including edible mushrooms, however, quite a number of wild edible mushrooms have been characterized and documented.

Objective

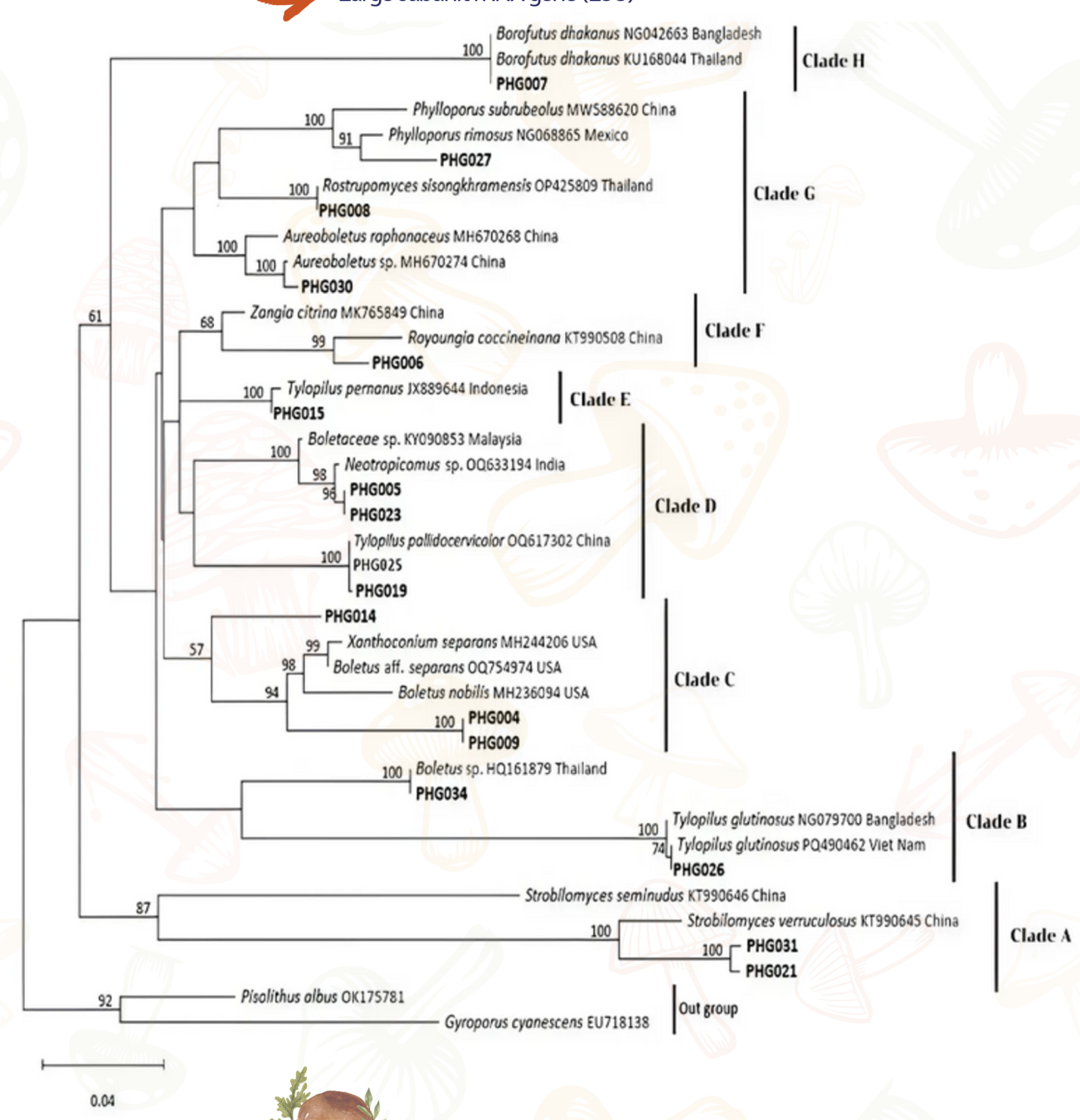
- To investigate the species diversity of the Boletaceae family within the Pa Hin Ngam National Park by conducting molecular analysis through *large subunit* rRNA gene (*LSU*), region in conjunction with morphological characteristics.
- To compile a species checklist of Boletaceae mushrooms as a reference documents for the sustainable utilization of biodiversity resources.

Methods and Materials

Sampling : Mushroom samples were collected for five consecutive days in May - August 2023.
Morphological and molecular approaches : The mushrooms were classified based on macroscopic characteristics and phylogenetic analysis has been constructed, using 28s nuclear ribosomal *large subunit* rRNA gene (*LSU*). (Vilgalys and Hester 1990)



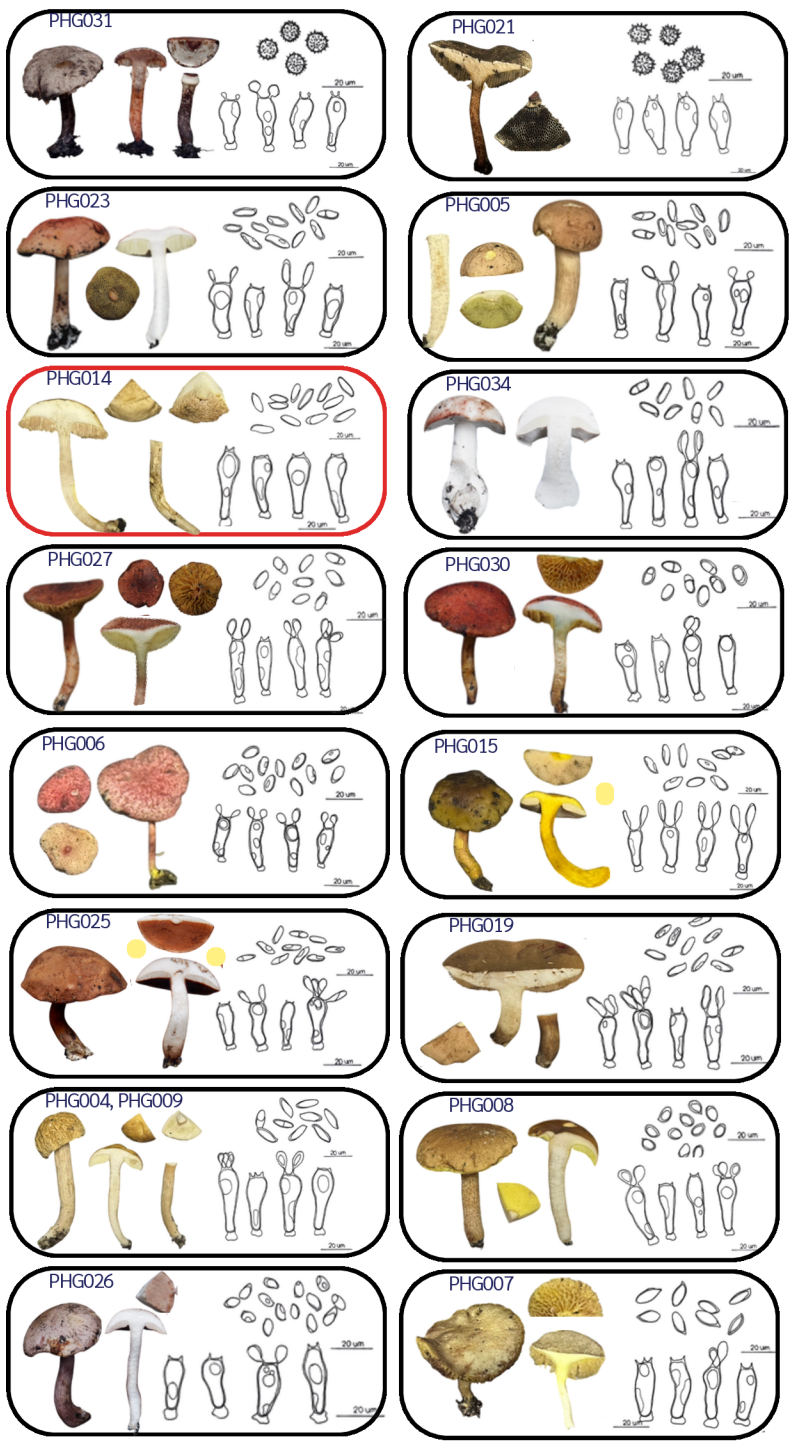
Large subunit rRNA gene (LSU)



Results and Discussion

From the survey and sample collection in the forest area of Pa Hin Ngam National Park, 17 specimens of the Boletaceae family were found. Nine genera were identified, which is consistent with the report by Khwanruan *et al.* (2023), which stated that the Boletaceae family is one of the major mushroom groups found in the forests of Pa Hin Ngam National Park, with five genera and seven species reported.

The use of a single gene locus for some species is insufficient for classification. Multiple gene loci should be studied to accurately identify and classify mushrooms. For example, studies by Raspé *et al.* (2016) and Vadthanarat *et al.* (2020) combined morphological characteristics with nucleotide sequence data from the *atp6*, *rpb2*, and *tef1* gene regions, leading to the discovery of new Boletaceae species in northeastern Thailand.



Remark : No closest genus founded in the database.

Conclusion

"The results of this study on the diversity of mushrooms in the Boletaceae family can be used for management planning of Pa Hin Ngam National Park, as well as other protected forest areas in Thailand. And this information serves as a reference for identified wild mushroom species that can be utilized. Wild mushrooms are considered a renewable and replaceable resource, as stipulated in Section 65 of the National Park Act B.E. 2562 (2019)."

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