

Short Communication

BOLETUS MANICUS HEIM

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Abstract—*Boletus manicus* Heim [Boletaceae] is a species of fungus found in Papua New Guinea. It is reported to have psychoactive properties. The chemistry of this species is poorly understood. The available chemical data indicates that *B. manicus* contains trace amounts of three unidentified indolic substances. The chemical structure of these substances has not yet been determined. For these indoles to be active in trace amounts they must be as potent as d-lysergic acid diethylamide (LSD).

Keywords—*Boletus manicus*, d-lysergic acid diethylamide (LSD), indoles, mushrooms, Papua New Guinea

Boletus manicus Heim [Family: Boletaceae; Order: Agaricales; Class: Basidiomycetes] is a species of fungi that was originally collected and described by the French mycologist Roger Heim [1900-1979] from Papua New Guinea in the 1960s (Heim 1963). In August to September 1963, Heim visited the Wahgi Valley in the Western Highlands Province of Papua New Guinea for three weeks with American ethnomycologist R. Gordon Wasson [1898-1986] (Heim & Wasson 1965). Heim and Wasson visited the Wahgi Valley to investigate reports by Australian anthropologist Marie Reay [1922-2000] that the Kuma people used apparently hallucinogenic [*sic*] fungi (Reay 1960). *B. manicus* has become well known for its psychoactive properties, as a result of many popular books (Rätsch 1998; Dobkin de Rios 1984; Schultes & Hofmann 1979; Emboden 1972). It is reported to produce visual and auditory hallucinations (Thomas 2000: 172)

The chemistry of *B. manicus* remains poorly understood and the active principle is unknown (Schultes & Hofmann 1980). However, *B. manicus* contains indolic substances (Rätsch 1998: 688; Ott 1993: 422). The presence of these indolic substances was originally reported by Heim (Heim 1965). Heim provided samples of *B. manicus*

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to Albert Hofmann in his Sandoz AG laboratory in Basel, Switzerland, in the 1960s (Hofmann 2001). Hofmann, the Swiss chemist who discovered *d*-lysergic acid diethylamide (LSD), detected trace amounts of three indolic substances in *B. manicus* (Ott 1993: 298 & 422) but "The amounts were too low to allow structural studies" (Hofmann 2001). Heim has suggested that these indolic substances "could be psychotropic" (Heim 1972: 173). As a result, Heim conducted three bioassays with *B. manicus*. Three trials with "weak doses" (less than 60 mg; Ott 1993: 298) were attempted by Heim, who suggested that "the amounts were insufficient to make any definite deductions" (Heim 1972:173). However, in the second trial, the ingestion of a powder made by crushing the flesh of *B. manicus* was followed by "the appearance of several luminous, fleeting visions during the course of a dream" (Heim 1972: 173).

Evidence for the presence of indolic substances in *B. manicus* can be found in the description of both the visual and auditory effects of these mushrooms (Reay 1977). After ingesting *B. manicus* Kuma men experienced "Lilliputian hallucinations [*sic*]" (Reay 1977: 59). Similar hallucinations have been reported with other species of *Boletus* (Stijve 1997: 33). In China, the ingestion of uncooked boletes has been reported to produce hallucinations of "a whole regiment of 2 cm tall soldiers marching over the table-cloth" (Stijve 1997: 33). "Lilliputian hallucinations [*sic*]" have also been experienced with the use of *N, N*-dimethyltryptamine (DMT) (O'Rourke 1998: 32). The Kuma experienced "Lilliputian hallucinations [*sic*]" of bush-demons flying about their heads (Reay 1977: 59). The Kuma regarded bush-demons as "tiny, two-dimensional, and often transparent creatures . . . [and] always identified cartoon figures . . . readily and positively as representations of bush-demons" (Reay 1977: 59). Such demons would "buzz" about their heads. It was reported by one Kuma man who had eaten *B. manicus* that these demons also made a "strange and terrible noise 'inside his ears' which he interpreted as a bush-demon boxing his ears" (Reay 1977: 59). Psilocybin often produces a similar "buzzing" noise (Beach 1996-1997: 13).

If any of the unidentified indolic substances in *B. manicus* are psychoactive, then they must be as potent, if not more potent, than LSD (Ott 1999). Assuming that *B. manicus* contains 1% of these indolic substances, which is a much higher concentration of indoles than Hofmann found in Mexican *Psilocybe* mushrooms (Hofmann 1960), a 1% concentration would represent less than 0.6 mg (600 µg) of

these substances (Ott 1999). Jonathan Ott has suggested that “we know of no fungal indole active at this level” (Ott 1999). The only substance that could explain psychoactivity at or below this level is LSD (Ott 1999). It is, of course, possible that *B. manicus* might contain LSD. If it does, it is difficult to understand why Albert Hofmann was unable to

detect its presence in *B. manicus* samples that he analyzed in his laboratory. For this reason, it is unlikely that *B. manicus* does contain LSD. It is possible, however, that *B. manicus* contains an as yet unidentified psychoactive indolic substance that is more potent than LSD.

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