

= *Psilocybe yungensis* =

Psilocybe yungensis is a species of psychedelic mushroom in the Strophariaceae family . In North America , it is found in northeast , central and southeastern Mexico . In South America , it has been recorded from Bolivia , Colombia , and Ecuador . It is also known from the Caribbean island Martinique , and China . The mushroom grows in clusters or groups on rotting wood . The fruit bodies have conical to bell @-@ shaped reddish- to orangish @-@ brown caps that are up to 2 @. @ 5 cm (1 @. @ 0 in) in diameter , set atop slender stems 3 to 5 cm (1 @. @ 2 to 2 @. @ 0 in) long . The mushrooms stain blue when bruised , indicative of the presence of the compound psilocybin . *Psilocybe yungensis* is used by Mazatec Indians in the Mexican State of Oaxaca for entheogenic purposes .

= = Taxonomy and classification = =

The species was described as new to science by American mycologists Rolf Singer and Alexander H. Smith , based on specimens collected in Nor Yungas Province , Bolivia , on the road to La Paz to Coroico . They published a short description in Latin in a 1958 Mycologia publication , followed by a more detailed description in English later that year . According to *Psilocybe* specialist Gastón Guzmán , the species *Psilocybe acutissima* (described by Roger Heim in 1958) , and *Psilocybe isauri* (described by Singer in 1959) are synonyms , as both the macroscopic and microscopic features are the same in the type material of all three . Singer considered *P. isauri* a species distinct from *P. yungensis* because of differences in the hairiness of the stem surface . Smith named the variety *P. yungensis* var. *diconica* for specimens he found with conical , rather than obconical (the form of an inverted cone) papilla . Similarly , the main distinguishing feature that Heim ascribed to *P. acutissima* was a papillate cap (somewhat resembling the shape of a female human breast) . Later studies showed that these morphological variations did not warrant individual recognition , because of the variable nature of these characteristics , and the existence of intermediate forms .

Guzmán places *P. yungensis* in the section *Cordisporae* , a grouping of *Psilocybe* species characterized primarily by having rhomboid spores less than 8 micrometers long . The specific epithet *yungensis* refers to the name of the type locality . The natives of Huautla de Jiménez and Mixe natives call *P. yungensis* a hongo adivinador (" divinatory mushroom ") , hong que adornece (" soporific mushroom ") , or hongo genio (" genius mushroom ") .

= = Description = =

The *P. yungensis* fruit bodies have caps that are conical to bell @-@ shaped in maturity , and reach a diameter of up to 2 @. @ 5 cm (1 @. @ 0 in) . The cap surface is smooth and sticky , and , in moist specimens , has faint radial striations (grooves) that extend almost to the margin . The color of fresh caps ranges from dark reddish @-@ brown to rusty brown to orangish @-@ brown . Additionally , the cap is hygrophanous , meaning it will change color depending on its state of hydration ; a dry cap fades to become dull yellowish @-@ brown or the color of " dingy straw " . The cap frequently has a prominent umbo .

The gill attachment ranges from adnate (broadly attached to the stem) to adnexed (narrowly attached) . The spacing of the narrow gills is close to crowded , and the gill color is initially dull gray before maturing spores cause the color to change to purplish @-@ brown . The stem is 3 to 5 cm (1 @. @ 2 to 2 @. @ 0 in) long and 1 @. @ 5 to 2 @. @ 5 mm (0 @. @ 06 to 0 @. @ 10 in) thick , and more or less equal in width throughout its length or slightly larger near the base . The hollow , brittle , stem is pale brown on the upper part , and reddish @-@ brown near the bottom . The stem is densely covered with whitish fibrils that are pressed flat against the surface ; the fibrils slough off in maturity to leave a smooth surface . The mushroom has a cortinate partial veil (resembling the webby cortina produced by species of *Cortinarius*) but it does not last for long ; it occasionally leaves behind sparse remnants of tissue hanging on the cap margin and the upper part of the stem . No ring remains on the stem after the veil disappears . All parts of the mushroom will stain blue

when injured ; these stains will blacken as the mushroom dries .

The spore print is dark purplish @-@ brown . Spores range in shape from roughly rhomboid to roughly elliptical , and typically have dimensions of 5 ? 6 by 4 ? 6 ?m . They are thick @-@ walled and have a large germ pore . The basidia (spore @-@ bearing cells) are club @-@ shaped to swollen , hyaline , usually four @-@ spored (although rarely two- or three @-@ spored forms are present) , and measure 13 ? 19 by 4 @.@ 4 ? 6 @.@ 6 ?m . The pleurocystidia (cystidia on the gill face) are ventricose (swollen) near the base and often mucronate (ending abruptly in a short sharp point) at the apex , and measure 14 ? 25 by 4 @.@ 4 ? 10 @.@ 5 ?m . The cheilocystidia (cystidia on the gill edge) are variable in shape , and measure 14 ? 40 by 4 @.@ 4 ? 7 @.@ 7 ?m . Pleurocystidia are relatively sparse , while cheilocystidia are abundant . Clamp connections are present in the hyphae . The application of a drop of potassium hydroxide solution turns both the cap and the stem from brown to blackish .

= = = Similar species = = =

The species *Psilocybe subyungensis* , known only from Venezuela , is roughly similar in form , although somewhat smaller , with a cap width of up to 1 cm (0 @.@ 4 in) in diameter and stem lengths of up to 3 @.@ 5 cm (1 @.@ 4 in) . In addition to differences in distribution , it can be clearly distinguished from *P. yungensis* by the larger cystidia : the pleurocystidia measure 8 @.@ 8 ? 11 by 3 @.@ 8 ? 5 @.@ 5 ?m , and the cheilocystidia 16 @.@ 5 ? 25 by 7 @.@ 7 ? 12 ?m . Stamets notes that " Few species resemble *P. yungensis* " , while Michael Beug considers the orangish @-@ brown cap color unusual for a *Psilocybe* , and compares it to *Conocybe* .

= = Habitat and distribution = =

Psilocybe yungensis is a saprobic species , and contributes to the degradation of organic matter deposited in soils and nutrient cycling in forests where it grows . It typically grows in clusters or groups on rotting wood (rarely on humus) ; it is less frequently found growing solitarily . It is often reported from coffee plantations , subtropical , or cloud forests , especially those occurring at elevations between 1 @,@ 000 and 2 @,@ 000 m (3 @,@ 300 and 6 @,@ 600 ft) . The species occurs in northeast , central and southeastern Mexico , and has been recorded from several locations in the states of Oaxaca , Puebla , Tamaulipas and Veracruz . It is also known from Bolivia , Colombia , and Ecuador , as well as the Caribbean island Martinique . In 2009 , it was reported from China . In Mexico and Colombia , the fungus usually fruits between June and July ; in Bolivia , it was recorded appearing during January .

= = Uses = =

The fruit bodies of *Psilocybe yungensis* are used for entheogenic , or spiritual , ritualistic purposes by the Mazatec Indians in the Mexican State of Oaxaca . Some authorities have suggested that *P. yungensis* is the " tree fungus " reported by Jesuit missionaries of the 17th and 18th centuries , a reddish mushroom that was apparently the source of an intoxicating beverage used by the Yurimagua Indians of Amazonian Peru . There is , however , no established record of hallucinogenic mushroom use in that area , and it is possible that the mushroom could instead be a psychedelic species of the wood @-@ dwelling genus *Gymnopilus* .