

= *Psilocybe hispanica* =

*Psilocybe hispanica* is a species of fungus in the family Hymenogastraceae . It produces small brown mushrooms with conical to convex caps up to 10 mm ( 0 @. @ 4 in ) in diameter and stems 16 to 25 mm ( 0 @. @ 6 to 1 @. @ 0 in ) long by 0 @. @ 5 to 1 mm ( 0 @. @ 02 to 0 @. @ 04 in ) thick . Reported as new to science in 2000 , it is only known from the Pyrenees mountain range in northern Spain and southwestern France , where it grows on horse dung in grass fields at elevations of 1 @, @ 700 to 2 @, @ 300 m ( 5 @, @ 600 to 7 @, @ 500 ft ) . The mushroom contains the psychoactive compound psilocybin . The possible depiction of this species in the 6 @, @ 000 @-@ year @-@ old Selva Pascuala rock art suggests that it might have been used in ancient religious rituals ? the oldest evidence of such usage in prehistoric Europe .

= = Taxonomy = =

The species was described by Mexican mycologist Gastón Guzmán in a 2000 publication , based on specimens collected by Ignacio Seral Bozal near Huesca in northern Spain in 1995 . *Psilocybe hispanica* is classified in the section *Semilanceata* of the genus *Psilocybe* because of its thick @-@ walled spores and fruit body that bruises blue with handling . The specific epithet *hispanica* is Latin for " Spanish " .

= = Description = =

The cap ranges in shape from somewhat conical to convex , and reaches diameters of 5 to 10 millimetres ( 0 @. @ 2 to 0 @. @ 4 in ) . Its surface is smooth , somewhat sticky to dry , and brown to brownish @-@ yellow . The gills are somewhat adnate , and brown @-@ violaceous with whitish edges . The stem is 16 to 25 mm ( 0 @. @ 6 to 1 @. @ 0 in ) long by 0 @. @ 5 to 1 mm ( 0 @. @ 02 to 0 @. @ 04 in ) thick , cylindrical , and slightly bulbous at the base . It is whitish @-@ yellow , with vinaceous or blue @-@ green to blackish tones towards the base . Mature specimens do not have a veil on the stem . The flesh is whitish , but like most psilocybin @-@ containing species , stains blue when injured .

The spores are ellipsoid and measure 12 ? 14 @. @ 5 by 6 @. @ 5 ? 8 ?m . They have a brownish @-@ yellow wall greater than 1 ?m thick and a broad apical germ pore with an acute hilar appendix at the base ( a region where the spore was once attached to the sterigma ) . The basidia ( spore @-@ bearing cells in the hymenium ) are four @-@ spored , hyaline ( translucent ) , and measure 32 ? 44 by 8 ? 12 ?m . The cap cuticle is made of a layer 130 ? 150 ?m thick , with hyaline , thin @-@ walled gelatinized hyphae measuring 1 @. @ 5 ? 4 ?m broad . The hypodermium ( the tissue layer directly under the pileipellis ) is made of thin @-@ walled , hyaline hyphae , 2 @. @ 5 ? 8 ?m broad , with a brownish incrusting pigment . Clamp connections are present in the hyphae .

= = Similar species = =

*Psilocybe semilanceata* is roughly similar in appearance to *P. hispanica* , but may distinguished by its mycenoid ( *Mycena* @-@ like ) appearance and acute umbonate cap . Although the grassland habitat of the two species is similar , *P. semilanceata* does not grow directly on dung ; rather , it is a saprobic species that grows on decaying grass roots . *P. fimetaria* also resembles *P. hispanica* , but it also has a mycenoid appearance and has a ring on the stem . In terms of microscopic characteristics , *P. fimetaria* has larger cheilocystidia that measure 20 ? 32 by 4 ? 8 ?m . *P. hispanica* differs from *P. liniformans* var. *liniformans* in that it lacks a gelatinous gill edge . *P. liniformans* var. *americana* has larger cheilocystidia , measuring 22 ? 33 by 5 @. @ 5 ? 9 ?m , and it is known to grow only on soil around herbs , in the Northwest and Northeast USA and Chile . *Deconica coprophila* ( formerly known as *Psilocybe coprophila* ) is a small brownish mushroom that also grows on dung , but it does not contain psilocybin and does not have a bluing stem .

## = = Habitat and distribution = =

*Psilocybe hispanica* is a coprophilous fungus ( dung @-@ loving ) , and produces fruit bodies that grow solitarily or in dense groups on horse dung ; sometimes more than 25 fruit bodies can arise from the same dung . In Guzmán 's original report , they were found in a Pyrenean meadow in Aragon , at an elevation of 2 @, @ 300 metres ( 7 @, @ 500 ft ) . In 2003 , the species was reported from Tramacastillo de Tena , a small village in the Pyrenees ; it was also reported to have " penetrated the French part of the Pyrenees " . Within its restricted range , the mushroom is " very common " at altitudes of 1 @, @ 700 to 2 @, @ 300 m ( 5 @, @ 600 to 7 @, @ 500 ft ) .

## = = Uses = =

The mushroom is consumed recreationally by Spanish youths for its mind @-@ altering effects ; other mushrooms used recreationally in Spain include *P. semilanceata* and *P. gallaeciae* . Guzmán and Castro report that a 17th @-@ century medallion found in Tena Valley in the southern Pyrenees had images of a devil and mushrooms carved on it . The mushrooms ? possibly either *P. semilanceata* or *P. hispanica* , according to Guzmán and Castro ? were used in witchcraft , a common practice in the valley during the Middle Ages .

It has been argued that prehistoric rock art at a site known as Selva Pascuala near the Spanish town of Villar del Humo offers evidence that *P. hispanica* was used in religious rituals 6 @, @ 000 years ago . The rock shelter at Selva Pascuala was discovered in the early 20th century ; in the early 21st century it was noticed that objects in one of the murals , which previously had been described as " mushrooms " , matched the general morphology of *P. hispanica* : the mural depicts a row of 13 mushroom @-@ like objects with convex to conical caps , and ringless stems that vary from straight to sinuous ( wavy ) . Additionally , the mural shows a bull , which suggests an association with the coprophilic *P. hispanica* . Although the hallucinogenic species *P. semilanceata* is also widespread in the area where the mural was found , its differing shape ( narrowly conical and acutely papillate ) and its habitat on soil instead of dung suggests it is not the species represented in the mural . If the interpretation is correct , the mural represents the oldest evidence of psychedelic fungi use in Europe , and the third reported instance of rock art suggesting prehistoric usage of neurotropic fungi . The only older example is from Tassili n 'Ajjér , in the Sahara desert in southeast Algeria . In 1992 , the Italian ethnobotanist Giorgio Samorini reported finding a painted mural dated 7000 to 9000 BCE portraying mushrooms , later tentatively identified as *Psilocybe mairei* , a species known from Algeria and Morocco .