= Lysurus mokusin =

Lysurus mokusin , commonly known as the lantern stinkhorn , the small lizard 's claw , or the ribbed lizard claw , is a saprobic species of fungus in the family Phallaceae . The fruit body consists of a reddish , cylindrical fluted stipe that is capped with several " arms " . The arms can approach or even close in on each other to form a spire . The gleba ? an olive @-@ green slimy spore mass ? is carried on the outer surface of the arms . The fruit body , which has an odor comparable to " fresh dog feces " , " rotting flesh " , or " sewage " when mature , is edible in its immature " egg " stage . The fungus is native to Asia , and is also found in Australia , Europe and North America , where it is probably an introduced species . It has been used medicinally in China as an ulcer remedy .

= = History , taxonomy , and phylogeny = =

The species was first described by the Catholic Priest and missionary Pierre @-@ Martial Cibot in the publication Novi Commentarii Academiae Scientiarum Imperialis Petropolitanae (New memoirs of the Imperial Academy of Sciences in St. Petersburg) (1775) , where he reported finding it near Peking (now Beijing) . This finding represents the earliest published scientific record of a fungus from China . Cibot 's original name for the lantern stinkhorn , Phallus mokusin , was sanctioned by Christian Hendrik Persoon in his 1801 Synopsis Methodica Fungorum . In 1823 , Elias Magnus Fries transferred it to the genus Lysurus in his Systema Mycologicum . L. mokusin is the type species of the genus Lysurus .

In 1938 , Y. Kobayasi reported the form L. mokusin f. sinensis , which he said differed from the main species in having a head that was more angular and conical at the top ; the form sinensis was also reported in Korea in 1995 . Some authors have attempted to define forms of L. mokusin as new species based on the degree of separation of the apical arms . For example , to contrast with his concept of Lysurus in which the arms were either free or slightly fused , the genus Lloydia was created by Chow in 1935 to contain species in which the tips of the arms were fused . As a result of various differing interpretations of the limits of L. mokusin , and the desire of some authors to define new species based on perceived differences , the fungus has acquired a lengthy list of synonyms over the years .

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Lysuris mokusin has been included in a large @-@ scale phylogenetic analysis of Gomphoid and Phalloid fungi published in 2006 , and was shown to form a clade with Simblum sphaerocephalum , Lysurus borealis , and Protubera clathroidea .

= = Description = =

Immature fruit bodies of L. mokusin are white , gelatinous " eggs " measuring 1 ? 3 cm (0 @.@ 4 ? 1 @.@ 2 in) in diameter , and are attached to the ground by thickened strands of mycelium called rhizomorphs . As the fungus matures , the egg ruptures as the fruit body rapidly expands , leaving volval remnants behind at the base . The stipe of the hollow , spongy mature fruiting body has dimensions of 10 ? 15 cm (3 @.@ 9 ? 5 @.@ 9 in) by 1 @.@ 5 ? 2 @.@ 5 cm (0 @.@ 6 ? 1 @.@ 0 in) , and ranges in color from white to pink to red , with 4 ? 6 distinct deeply grooved sides divided lengthwise by ribs . The basis of distinction between L. mokusin and other species of Lysurus is the angular form of its stipe . The sides branch out into 4 ? 6 arms that are fused together at the tip to form a pointed apex , resembling a spire . As the mushroom matures , the arms may spread apart . The outer surface of the arms is coated by a brownish , slimy , foul @-@ smelling spore mass called the gleba ; its fetid odor helps it attract flies and other insects to assist in spore dispersal . The odor has been compared to " fresh dog feces " , " rotting flesh " or sewage .

The spores are cylindrical in shape , smooth , thin @-@ walled , and hyaline (translucent) , with dimensions of 4 ? 6 by 2 ? 2 @.@ 5 µm . Scanning electron microscopy reveals that one end of the spores has a hilar scar ? an indentation in the spore wall that results during its separation from the

sterigma of the basidium . The basidia (spore @-@ bearing cells) are usually eight @-@ spored , and the gleba composed of chains of roughly spherical , fusiform , ellipsoid to broadly club @-@ shaped cells that are either 6 @.@ 5 ? 7 @.@ 4 by 2 @.@ 8 ? 5 @.@ 6 µm or 37 @.@ 1 ? 46 @.@ 3 by 18 ? 28 µm and also mixed with filamentous cells 2 @.@ 3 ? 4 @.@ 5 µm wide . The hyphae of L. mokusin have clamp connections .

= = = Similar species = = =

Lysurus cruciatus is similar is appearance to L. mokusin , but has a cylindrical stem without any flutings at the tip . Lysurus borealis is also similar , but its stipe is not fluted , and without the angles present in L. mokusin .

= = Edibility and other uses = =

This species is considered to be edible when still in the immature " egg " stage , and is thought to be a delicacy in China . When mature , its foul odor would deter most individuals from attempting consumption . The fungus has been used medicinally in China as a remedy for ulcers .

= = Habitat and distribution = =

Lysurus mokusin is saprobic , and grows solitarily or in small groups in forest litter , and wood chip mulch used in landscaping , and compost . Documented sightings of L. mokusin include Australasia , the Canary Islands , Korea , Japan , China (Fujian Province) , and the Bonin Islands . The species was unknown in Europe until it was reported in Italy in 1979 ; it is considered an alien species in that continent . In the United States , it has been collected from the states of California , Texas , and Washington , D.C ..