= Mutinus elegans =

Mutinus elegans , commonly known as the elegant stinkhorn , the dog stinkhorn , the headless stinkhorn , or the devil 's dipstick , is a species of fungus in the Phallaceae family . A saprobic species , it is typically found growing on the ground singly or in small groups on woody debris or leaf litter , during summer and autumn in Japan , Europe , and eastern North America . The fruit body begins its development in an " egg " form , resembling somewhat a puffball partially submerged in the ground . As the fungus matures , a slender orange to pink colored stalk emerges that tapers evenly to a pointed tip . The stalk is covered with a foul @-@ smelling slimy green spore mass on the upper third of its length . Flies and other insects feed upon the slime which contains the spores , assisting in their dispersal . Due to their repellent odor , mature specimens are not generally considered edible , although there are reports of the immature " eggs " being consumed . In the laboratory , Mutinus elegans has been shown to inhibit the growth of several microorganisms that can be pathogenic to humans .

= = Taxonomy = =

Mutinus elegans was first described by British missionary John Banister in 1679 who chronicled the natural history of Virginia ; this early report is thought to be the first account of a fungus in North America . It was first characterized scientifically by French scientist Jean Pierre François Camille Montagne in 1856 , who called it Corynites elegans . The genus name Mutinus refers to a phallic deity , Mutinus Mutunus , one of the Roman di indigetes placated by Roman brides . The species is commonly known variously as the " elegant stinkhorn " , the " headless stinkhorn " , the " dog stinkhorn " , or the " devil 's dipstick " . The specific epithet elegans is derived from the Latin word meaning " graceful " or " elegant " .

= = Description = =

The young fruiting bodies are initially white and spherical or egg @-@ shaped , partially submerged in the ground , with dimensions of 2 to 3 cm (0 @.@ 8 to 1 @.@ 2 in) by 1 to 2 cm (0 @.@ 4 to 0 @.@ 8 in) . As the fruit body matures , the egg ruptures and the spongy spore @-@ bearing stalk emerges ; fully grown , it may be from 1 to 15 cm (0 @.@ 4 to 5 @.@ 9 in) long and 1 @.@ 5 to 2 cm (0 @.@ 6 to 0 @.@ 8 in) thick . The stalk is hollow and strongly wrinkled overall ; its shape is cylindrical below , but it gradually tapers to a narrow apex with a small opening at the tip . The upper half of the stalk is bright red to reddish orange , and the color gradually loses intensity transforming into pinkish white below . The stalk may be straight , or slightly curved . A gelatinous greenish @-@ brown gleba covers the upper third of the stalk in newly emerged specimens . The remains of the " egg " forms a volva around the base of the stalk . The odor of the gleba is foul ; one author describes it as " sickly sweet or metallic " . The spores are a greenish @-@ brown color . Fruit bodies are attached to the substrate by whitish rhizomorphs that resemble plant roots . American mycologist Smith noted that the eggs are often slow to open , sometimes taking up to two weeks before the stalk expands .

The spores are 4 ? 7 by 2 ? 3 µm , oblong @-@ elliptical , smooth , and embedded in the gleba . A 1982 study revealed that spores of species in the Phallaceae family , including Mutinus elegans , have a hilar scar (0 @.@ 2 ? 0 @.@ 3 µm diameter) that is observable with scanning electron microscopy . The hilar scar is a circular indentation at one end of the spore , and it most likely results during the separation of the attachment of the spore to the sterigma of the basidium .

= = = Edibility = = =

The immature egg @-@ forms of Mutinus elegans are edible , but " not recommended " . One field guides notes that the eggs of the stinkhorn fungi " taste like the seasonings that are added to them . " The fetid odor of mature specimens would probably be repellent to most , although they are not

considered poisonous .

= = = Similar species = = =

The " dog stinkhorn " (Mutinus caninus) is smaller , has a distinct oval or spindle @-@ shaped tip on a slender stem and lacks the bright coloring of M. elegans ; it has less of the stalk covered by gleba . The portion of the stalk below the spore mass is pitted in M. caninus , compared to " pebbly " in M. elegans . M. caninus is also less common than M. elegans . Mutinus bambusinus is similar in size and shape , except it does not have a distinct color demarcation between the upper and lower parts of the stalk ; instead , the entire stem shows red pigments . The stalk of M. ravenelii is less tapered than M. elegans , and it has a clearly differentiated swollen head .

= = Habitat and distribution = =

Mutinus elegans is saprobic ? deriving nutrients by breaking down dead or dying organic matter . It is commonly found in gardens and farm areas enriched with manure , near well @-@ decayed stumps and logs , and in wood chips . A Japanese publication mentioned its occurrence in Takatsuki and Osaka @-@ fu , where it fruited in November and December on the ground along paths or in open spaces , under or near bamboo (Phyllostachys bambusoides) and hardwoods such as the Sawtooth Oak , the Japanese Zelkova , and the Camphor tree .

This common species has been collected in eastern North America , in the area extending from Quebec to Florida and west to the Great Lakes , Iowa , and Texas . In Europe , it has been reported from Netherlands and in Asia , it has been collected in Japan .

= = Antibiotic activity = =

A study of 32 basidiomycete mushrooms showed that Mutinus elegans was the only species to show antibiotic (both antibacterial and antifungal) activity against all six microorganisms tested , namely , the human pathogenic bacteris Bacillus cereus , Bacillus subtilis , Staphylococcus aureus , Escherichia coli , Salmonella typhimurium and the yeast Candida albicans .