

Claviceps purpurea

[Synonyms : *Secale cornutum*]

ERGOT is a parasitical fungus. It has a dark violet-black surface and is found on some grasses, primarily rye (*Secale cereale*) or wheat (*Triticum aestivum*) in all cereal producing countries in areas/years of high humidity.

It is also known as Claviceps, Cockspur rye, *Ergot de seigle* (French), Ergot of rye, Hornseed, *Mjöldryga* (Swedish), Mother of rye, *Mutterkorn* (German), Rye ergot, *Secale cornutum*, *Seigle ergoté* (French), Smut rye, Smut of rye, Spurred rye, and *Torajyvä* (Finnish).

The spores are dispersed by insects and wind. Ergot is more frequent in wet years than in dry and is most prevalent in areas where seed control is lax.

The fungus is collected from the threshed grain when the mature ears are harvested and dried.

Warning – ergot is poisonous. Large doses can induce abortion in pregnancy, increase blood pressure, and cause mild tingling or burning sensations in the mouth, digestive tract and extremities, as well as drowsiness, vomiting, muscle twitching, staggering gait, and gangrene of extremities, violent pains, delirium and death. Additionally its hallucinatory qualities can engender the fatal conviction that one can fly and can also lead to permanent psychosis. It should be used by qualified practitioners only. In Britain this is classified as a prescription only medicine. It is equally poisonous for animals.

Purpurea is Latin (purple-coloured) with reference to the colour of the fungus.

The old French name for the fungus was *argot* (a cock's spur) which is a descriptive name. It is thought that the English name Ergot is a corruption of this.

Ergot's poisonous qualities were familiar in the Middle East by at least 600 BC and were known to the Assyrians. As however rye (*Secale cereale*) had only begun to progress towards western Europe by the early years AD, most of the Roman Empire was not affected by poisoning until the Christian era. (The Greeks had initially spurned rye (*Secale cereale*) ergot's host as a food that they had seen with distaste in Macedonia, although they did use ergot in religious rituals.)

From at least the 6th Century (if not earlier) until 1816 an illness now known as ergotism, but at the time called by such names as St. Antony's Fire or Holy Fire (because of the tingling or burning sensations experienced), held sway in periodic epidemic coverage throughout Europe. The aftermath of these epidemics must have been gruesome as those who survived would have included many who were permanently insane or disfigured with the loss of ear lobes, noses, fingers, toes, or feet. One of the first recorded outbreaks refers to the year 857 when thousands of people in the Rhine valley died, unknowingly, from eating infected bread. The symptoms were dramatic and included hallucination and madness. Another example occurred in the south of France in 994 when about 40,000 people died and whole villages were ravaged. Then in about 1100 the Order of Hospitallers of St. Antony was founded north of Lyon in France. St. Antony (251-356) had been esteemed as a healer of men and animals and the Order set out to care for those afflicted by the disease. Its success was such that it eventually became a focus for sufferers all over western Europe. A number of other Orders with similar intent were also formed, but St. Antony's patronage seems to have offered the greatest confidence as some victims were even desperate enough to make the hazardous journey from western

Europe to Alexandria in Egypt to seek help at St. Antony's shrine. Many of the Orders grimly displayed patients' mutilated limbs as witness to those for whom they had provided succour. These Orders also offer one explanation for the name 'St. Antony's fire' by which the symptoms of this form of poisoning came to be known by many. Ergotism was not confined to the European Continent as the trial of the witches of Salem was subsequently to illustrate quite dramatically. In 1692 twenty girls were convicted of witchcraft at a trial in Salem, Massachusetts and executed. It was only much later that their innocence was shown and the possible explanation for their strange behaviour – contaminated bread – was identified. Some authorities note that military forays under the Russian tsar, Peter the Great (1672-1725), against the Ottoman Empire were interrupted when his armies succumbed to St. Antony's Fire. When outbreaks occurred many of the people turned to the Church and it was eventually realized that these people seemed to be immune. [Subsequently it was noted that monasteries made their bread from wheat (*Triticum aestivum*), not rye (*Secale cereale*), which not only provided a change of diet but also a less willing host for the rust.] Eventually it was also noted that poor people who were unable to afford the cleaned rye flour succumbed to the epidemics ultimately avoided by wealthier folk. Then the cause itself was isolated – contaminated rye flour or bread containing a high proportion of the ergot fungus (which itself contains 20 different poisons).

From about the mid-1700s far greater care has been taken generally when the rye (*Secale cereale*) has been milled. Despite this however there are the odd outbreaks even today. In 1929 there was one in Ireland and in the Ukraine, and then in the early 1950s local epidemics occurred in France and Belgium. According to records one young girl living in a French village that succumbed is said, in hallucination, to have seen geraniums growing out of her arms. This fungus does in actual fact form on other grasses such as wheat (*Triticum aestivum*), but only that on rye is used for medicinal purposes.

Although some authorities state that the explanation for these epidemics was only identified in the early 19th Century, in the late 1550s the Germans recognized professionally that the fungus could be of medicinal use in obstetrics. (It had by then already served in this way for many years in European folk medicine.) Since that time it has continued to be formally accepted in orthodox Western medicine for this purpose, as well as for neurological treatments and for migraine.

Ergot is also the starting point for the preparation of LSD identified by Dr. Albert Hofmann (1906-) in the mid-20th Century, the supply of which is monitored.