

chemical determination of ergot is, for the most part, deposited as a (lime) compound insoluble in water and alcohol. It is carried into solution by alcohol after treatment of the powdered ergot with an aqueous solution of tartaric acid; but loses in the subsequent purification a very considerable proportion which changes into a brown resinous substance. This coloring matter, of which unfortunately we have not hitherto been able to get a large quantity in a pure state, we have named Sclererythrin. It is insoluble in water; in dilute and strong alcohol, ether, and chloroform, and also in dilute aqueous solutions of caustic potash, ammonia, etc., it is easily soluble. Its solutions in alkalis are of a beautiful murexid color. When these are decomposed by an acid and shaken with ether the sclererythrin is taken up by the ether. Alcoholic solution of sclererythrin gives with aluminum sulphate and with zinc chloride a splendid red mixture; with salts of calcium, barium, and many of the heavy metals it gives a blue precipitate. We suspect in sclererythrin a derivative from anthraquinone, standing in near relation to crysophanic acid and alizarine. The amount of this otherwise not quite inactive substance in the mature ergot is very small. It amounts in any case to only about one-tenth or one-twentieth of a part per thousand.

(3) With sclererythrin is obtained a small quantity of another coloring matter similar to it, which after being once isolated is not soluble in alcohol, ether, chloroform, or water; but it dissolves with a splendid violet color in potash solution, and from this solution is again precipitated by acetic acid. By potash solution it can be extracted from ergot residue that has been exhausted with water, alcohol, and ether, in which it amounts at the most to one part in one thousand. Concentrated sulphuric acid dissolves it with a handsome blue violet color, and on this account we have named it Scleroidin. Its analysis gave 64.88 per cent. of carbon, 5.5 per cent. of hydrogen, 3.87 per cent. of nitrogen, and 25.50 per cent. of oxygen. This substance also is slightly active and similar to sclererythrin. Probably it represents a decomposition product of sclererythrin, originated by acid and ammonia, but which in any case is formed in the ergot.

(4) From the ergot powder treated with aqueous solution of tartaric acid, after the sclererythrin and a small portion of the scleroidin have been extracted by alcohol, ether takes up a mass, which upon the evaporation of the ether is obtained partly as almost colorless needles and partly as citron-yellow tabular crystals and plates. The needle-shaped crystals, which we have named Sclerokrystallin, can be purified by recrystallization from chloroform. Sclerokrystallin is almost insoluble in water and alcohol and difficultly soluble in ether, but it is taken up by caustic ammonia and potash solutions. Its analysis gave 61.11 per cent. of carbon, 4.91 per cent. of hydrogen, and 56.98 per cent. of oxygen, from which probably the composition $C_{10}H_{10}O_4$ might be concluded.