

The Impact of different factors on mycelial growth and effect of electric pulse stimulation on fruit body formation of *Sparassis crispa* .

Muhammad Umar Farooq and Shoji Ohga

Department of Agro-environmental Sciences, Faculty of Agriculture,
Kyushu University, Fukuoka 811-2415, Japan

ABSTRACT

The study was carried out to detect favorable temperature, pH, carbon and nitrogen sources for mycelial growth of *Sparassis crispa* mushroom and to evaluate the effect of high-voltage electrical stimulation on fruit body formation. An output voltage upto 170 Kv was used as electrical stimulation to determine the optimum value of used voltage.

The best growth was found at 25°C followed by 20°C. No mycelial growth appeared when temperature treatment was raised at 35°C but there was little growth at 30°C. The best growth was obtained at pH 6 and 7 followed by pH 5. There was least mycelial growth when culture medium was treated at pH 8 and 9. Culture media supplemented with fructose and glucose exhibited best growth but there was no growth for culture medium supplemented with galactose. However there was also some growth for lactose, maltose, mannose, sorbitol, sucrose, xylitol and xylose. Similarly for culture medium supplemented with nitrogen sources, such as glycine, alanine and potassium nitrate gave best results. Calcium nitrate, methionine and urea also gave some growth but there was no growth with Ammonium acetate, ammonium phosphate, arginine and histidine. In case of dry fruiting body, weight increased more with the increase in voltage of the electric pulse between zero and 120 kV than between 120 kV and 170 kV. Similarly fresh fruiting body yield increased more between zero and 130 kV of electric pulse than between 130 kV and 170 kV. The maximum yield was found at 170 kV of electric pulse. There was more primordial on treated substrate as compared to control one. There is 130% -180% increase in fruit body production when applying electric pulse was used as compared with control.

The optimum growth was determined at 25°C, pH 6 and with Fructose and glycine as carbon and nitrogen sources and fruit body formation at 170Kv of electric pulse respectively.

Keywords: *Sparassis crispa*, Environmental factors, Nutritional factors, Mycelial growth, Electric Pulse, Electrical Stimulation, Fruiting body.