

On Sporulation Factor in *Aspergillus Oryzae*

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It is well known that sporogenesis in microorganisms is controlled by their environment, and therefore the organisms capable of sporulation cannot sometimes reveal any spore formation according to their cultural condition. However, on the other hand, there exists the strain revealing no spore formation under any favorable condition, even in the same species which originally possess the ability to sporulate.

There has appeared in *Aspergillus oryzae* such a strain as mentioned above on the way of the experiment on biochemical degradation of pyocyanine.** This may also belong to a category of the mutation.

The author has come to introduce a concept of "sporulation factor" in general microorganisms, from the fact that a remarkable spore formation was revealed by the spore-less strain when a culture extract of the normal strain was administered to it. This controlling factor should be produced by spore-forming organism as a metabolite essential for sporogenesis, and will be expected to be perhaps universal among various microorganisms of spore-forming capacity, because the same effect as described above was observed in relation between two different genera, *e. g.* *Aspergillus* and *Penicillium*.

On the other hand, the culture extract of *Bacillus subtilis* and other spore-forming bacteria sustained to some extent the sporulation of *Aspergillus oryzae*. This fact would more support the above-mentioned concept.

This substance is rather hardly soluble in major organic solvents, and yet can be extracted with butanol or acetone from the cultured solution saturated with ammonium sulfate, suggesting it to be extracellular. The experiment with spore-less mutant strain has succeeded in the formation of spore by the resting mycelium harvested at a stationary growth phase as well as by the cell growing on culture extract of the normal strain added to the medium at an initial stage.

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