

Phosphorous content and rhythmic growth

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Abstract

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NOTE ON PODOSPORA

Lysek, G. and T. Bornefeld. Phosphorous content of wild type and "clock" mutants of Podospora anserina.

Esser 1971 Arch. Mikrobiol. 75: 360). An investigation of the metabolism of phosphorylated sugars has been started by determining the phosphorous content of the wild strain and of the rhythmically growing mutants *circulosa*, *undulata* and *zonata*.

The mycelia were cultured at 28°C in 100 ml Erlenmeyer flasks containing 25 ml of a 1.5% solution of malt extract. The hyphae were harvested by filtration: dry weight and phosphorous content were then measured (Martland and Robison 1926 Biochem. J. 20:848)

Table 1. Dry weight and phosphorous content of wild type and clock mutants of P. anserina.

Strain	P-content µM P/mg dry wt.	dry weight mg/g malt extract
wild type	0.257 + 0.003	164.2 + 5.25
<i>circulosa</i>	0.290 + 0.015	103.0 + 2.88
<i>undulata</i>	0.288 + 0.008	89.5 + 2.80
<i>zonata</i>	0.466 + 0.008	37.4 + 1.01

The study of the metabolism of rhythmically growing strains of P. anserina has shown that this growth pattern is associated with an enhanced catabolism of substrates (e.g., carbohydrates), resulting in a reduced production of total dry weight (Lysek and

The data presented in Table 1 show that the mutants *circulosa* and *undulata* have a slightly higher content of phosphorous than does the wild type strain. (The difference is not highly significant but is reproducible.) These strains exhibit a slower increase in dry weight than does the wild type. The mutant *zonata*, which contains the highest levels of phosphorous, produces the smallest amounts of dry weight. In addition, this strain differs more conspicuously from the wild strain in terms of pigmentation, hyphal morphology, reproduction, etc. (Esser 1969 Neurospora Newsl. 15: 27). The parallelism between phosphorous content and the changes in these properties lends some support to our hypothesis that changes in the metabolism of phosphorylated compounds may be involved in the generation of rhythmic growth patterns.

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