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Regulation of perithecium development and maturation in *Pleospora herbarum* by light and temperature

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Exposure of growing colonies of *Pleospora herbarum* (Pers.) Rabenhorst (Imperfect stage = *Stemphylium botryosum*) to UV radiation stimulated the formation of protoperithecia which matured only when subjected to long uninterrupted periods at low temperature (21 days at 5–10 °C). Equivalent periods of intermittent (diurnal) low temperature were not effective. Maturation was influenced by the temperature during near-UV induction, and protoperithecia formed at 24–27 °C were most likely to mature following cold treatment. The temperature following cold treatment also influenced maturation of protoperithecia: 10–15 °C was most favourable. Maturation was governed by an inverse relationship between the length of the cold treatment and of the terminal incubation. Light was essential for induction of protoperithecia but not for their subsequent maturation. Maturation once started by cold treatment was negated by relatively high temperatures (30 °C)

Cold induction of protoperithecia in the dark, hitherto unrecorded, was observed when actively growing vegetative colonies were exposed to low temperatures (5–15°) for 1–35 days. An 8-day exposure to cold was necessary for maximum induction, although a few protoperithecia formed after a 24 h exposure. Maturation required another 35 days at low temperature (12–5°).

The influence of low temperature on sexual reproduction of fungi is reviewed.



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