

## Are subpopulations of *Heterobasidion parviporum* differentiated by local climate?

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Ninety nine strains of *Heterobasidion parviporum* representing five subpopulations were isolated during 1992-2008 from geographically distant and climatically varying Norway spruce stands in Finland, Denmark, Italy and Central Siberia. We determined their respiration rate (RR) on spruce saw dust as the only substrate at various temperatures from -4°C to 33°C. The optimal temperature for RR varied from 20°C to 30°C. Average RR of all isolates was highest at 25°C and lowest at -4°C (18 and 0.5 µmol CO<sub>2</sub>/d/g of wood, respectively). As based on these results, we calculated that a temperature increase of for instance 2°C would rise the RR by *H. parviporum* at winter temperatures (-4° – 0°C) by 50%, at spring and autumn temperatures (0° – 6°C) by 30% and at summer temperatures (6° – 20°C) by 20%.

The highest between-strain variation in RR was observed at the extremes of the applied temperature scale, at 33°C and -4°C. Old isolates had lower respiration rate at 20°C and 25°C than recently isolated ( $p=0.001$  and  $0.052$ ) but this difference was not observed at lower or higher temperatures. No significant differences between RR of European subpopulations were found but the Siberian strains showed significantly different RR at several temperatures compared to European isolates.