

## Morphological differences in uredinial stage of aspen rust, *Melampsora populnea*

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Aspen rust, *Melampsora populnea* is known as a collective species having at least four different types or *forma speciales* according to the alternate hosts on which their asexual aecial stage develops. The species definition of rust fungi can be based only on the telial morphology. That is apparently similar in each of these four types. Perhaps, for that reason uredinial stage has remained without detailed investigations. In Chinese and Canadian studies applying DNA tests *M. populnea* has been divided into two groups. In this work the specimens in the herbaria of Metla (HFR) and of University of Helsinki (HU) *M. populnea* were examined in order to find morphological differences according to the DNA grouping.

A rust with very small uredinia on the lower leaf surface was most common. This type produces small, elongated spores with thicker wall at longer sides. They are dispersed around the lower leaf surface. The second type has wider uredinia, often aggregated into tight groups. The third type form the uredinia on the bark of current year, as well as on the bark of several year old shoots. Spores of the large aggregated uredinia and of those developing on bark are similar, almost round, larger than the spores in the first type, with considerable variation in size, the thickness of the wall is quite even around the spores. Using the uredospore morphology, *M. populnea* was possible to divide into two groups: the first having aecia on conifers (*Larix* and *Pinus*) and the second with aecia on herbaceous plants.