

## THE EFFECTS OF LEAF WAX COMPOSITION AND RATIO ON RUST RESISTANCE OF POPLARS

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*Populus tomentosa*, *Populus deltoides* Marsh and *Populus purdomii* Rehd are three typical poplar which show different resistant type to *Melampsora larici-populina*. Leaf surface waxes were extracted by chloroform, and detected by gas chromatography-mass spectrometry (GC-MC), scanning electronic microscope (SEM). Leaves of *Populus tomentosa* fixed the highest wax content of  $5.6628\mu\text{g} \cdot \text{cm}^{-2}$ , followed by *Populus deltoides*  $4.1371\mu\text{g} \cdot \text{cm}^{-2}$ , and then *Populus purdomii* Rehd with  $1.6667\mu\text{g} \cdot \text{cm}^{-2}$ , which conformed to the thickness under the SEM and the phenotype of rust resistant poplars. Alkanes, alcohols, aldehydes, fatty acids, esters and a small amount of some phenols, ethers, ketones, amides substances are the main composition of leave surface wax. Among them, C12 and C15 phenols, C8 and C18 amides, are both directly correlated with poplar tree rust resistance. Additionally, amides show higher rights than phenol substances for evaluation of poplar rust resistance. Wax content ratio is an important index for evaluating poplar rust resistance, especially the C18 amides ratio can directly be used for *Melampsora* resistance in poplar breeding.

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Citation for proceedings: Nelson, C. Dana; Koch, Jennifer L.; Sniezko, Richard A., eds. 2020. Proceedings of the Sixth International Workshop on the Genetics of Host-Parasite Interactions in Forestry—Tree Resistance to Insects and Diseases: Putting Promise into Practice. e-Gen. Tech. Rep. SRS-252. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 170 p.