Saponins from *Sapindus mukorossi:* Extraction, purification and biological activity against apple scab

Franziska M. Porsche and Andreas Kollar
Julius Kühn-Institut, Institute for Plant Protection in Fruit Crops and Viticulture, Dossenheim
Email of corresponding author: franziska.porsche@jki.bund.de

Saponins from soap nut, *Sapindus mukorossi*, show high antifungal activity against the plant pathogen *Venturia inaequalis*. In seedling assays, a treatment with *S. mukorossi* extract (1%) reduced apple scab symptoms. Pathogen sporulation on infected leaves was reduced (99%) as compared to control.

New extraction and purification methods to analyze and characterize the antifungal saponins from *S. mukorossi* were developed. Fine-grinded pericarps of *Sapindus mukorossi* were extracted with a chloroform-methanol-water mixture. In a next step chloroform and water was added to achieve phase separation. The supernatant was removed and lyophilized. Further purification was achieved by hydrophobic interaction preparative column chromatography. For the first time Phenyl Sepharose High Perfomance was used for saponin separation.

Detection of membranolytic/hemolytic fractions was performed with an agar diffusion assay amended with sheep erythrocytes. Fractions were further purified and analyzed with TLC. Separated bands were visualized, scraped off and extracted with 80%. ethanol. These compounds were further characterized by HPLC analyses. Peaks were fractionated and subjected to bioassays. One fraction showed significant fungizidal effect on conidia germination and growth of *Venturia inaequalis*.