Comparison of five DNA extraction methods for molecular analysis of Jerusalem artichoke (Helianthus tuberosus)

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ABSTRACT. DNA extraction is an essential step for molecular analysis of an organism, but it is difficult to acquire a sufficient amount of pure DNA from plant tissue with high levels of phenolic compounds, carbohydrates, proteins, and secondary metabolites. Jerusalem artichoke (Helianthus tuberosus) has high levels of such substances. We compared five commonly used methods of extracting genomic DNA in tests made with leaves and seed of four Jerusalem artichoke genotypes: 1) modified method of Tai and Tanksley, 2) method of Doyle and Doyle, 3) method of Porebski, 4) modified method of Štorchová, and 5) Plant DNA Kit of Omega Bio-tek. The quality and quantity of extracted DNAs were assessed by photometric assay, electrophoresis on 1% agarose gel and a PCR-based technique. The modified method of Tai and Tanksley was found to be superior for both young leaves and seed. The quality of the extracted DNA was confirmed by sequence-related am-
plified polymorphism. This information will be useful for molecular analyses of Jerusalem artichoke and other related *Helianthus* species.

**Key words:** DNA extraction; Phenolic compound; Jerusalem artichoke