

Conference Abstract

Adhesives and the Herbarium: International Survey and Application of the Results in Analysis of the Influence of Conservation Materials on DNA of Herbarium Specimens

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Abstract

In 2017 the author conducted an international survey among the conservators who have worked with herbaria collections, particularly paper conservators who treated historic herbaria. During the survey the author contacted 25 people from 9 countries. The participants were the conservators who either shared their experience through publications or whose conservation reports were available to the author. Participants were asked to recommend materials used in the conservation of historic herbaria and materials used on a daily basis to mount specimens. The aim of the survey was to list the materials that have direct contact with the surface of the specimens. Therefore the results concentrated mostly on adhesives. Acknowledging that materials recommended for conservation treatment may differ from those used for a typical mounting of a modern specimen, the author presented a traditional conservator's approach that every modern object (including herbaria) may one day become a valuable part of heritage. This means that all materials used when working with herbaria should be reversible and DNA-safe. The survey revealed that most conservators recommend materials that are very popular in paper conservation: wheat starch paste and methylcellulose at different concentrations, however some suggested using animal glues such as gelatine or isinglass and mixtures of isinglass and starch paste.

Other adhesives that were present in the results were two versions of hydroxypropylcellulose, Klucel G and Klucel E, rice starch, shofu, and different PVAs used for mounting (e.g. Hewit M218 and Jade 403). Many conservators expressed their negative approach to popular mounting materials and techniques of mounting by overall adhesion.

The survey was a part of the project "Heritage preservation and ethnobotany. Analysis of the influence of conservation treatment on genetic material comprised in historic herbaria" (project no. 2014/13/N/HS2/03118) funded by the National Science Centre in Poland. The results of the survey served as a basis for the next stage of the project, which was testing samples of herbarium specimens, 'treated' with the chosen materials, for the possible damaging influence on the DNA of specimens. The choice of materials based on the results of the survey, literature and availability of materials (some adhesives used for mounting some decades ago are no longer available). The herbarium samples were made of *Arabidopsis thaliana* and *Fragaria vesca* leaves, prepared for the project. After drying and 'treating' with conservation and mounting materials, the samples were artificially aged in a climatic chamber to imitate deterioration processes.

Keywords

herbarium conservation, adhesives, DNA

Presenting author

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