## ABSTRACT

### INVESTIGATION OF SEVERAL BRYOPHYTE SPECIES FOR SPECIFIC SORBENT ACTIVITY FOR PROTEIN – ANTIBODY PURIFICATION

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Immunoglobulin G is basic antibody molecule in human blood. IgG is an antibody which have therapeutic uses in medicine and have high commercial value. In recent years several methods are used for IgG purification. In this study mosses are used as a natural phytosorbent for IgG purification. Moss species were collected from their natural habitat, then cleaned, dried, grinded in laboratory and sieve analysis were performed. Laboratory experiment were done with particles smaller than 140 μm. Characterization of moss species were conducted using FTIR, SEM, and microscobical investigations. As a result of these analysis, important hyrophobicity on plant surface were determined. Adsorption of IgG onto plant speices were investigated in batch system under various medium conditions (i.e. pH, ionic strength, IgG concentration, temperature). During optimisation experiments, pH 5.0 buffer were found to be optimum buffer for all species. With the concentration experiments, adsorption mechanism were found suitable to Langmuir adsorption isotherm, which determines single layer adsorption onto plant surfaces. Adsorbed IgG amount were found approximately 60 mg/g. Adsorption-desorption experiments indicated that plants were reusable. Results indicated that moss species have the capacity to be used as biosorbent for IgG purification, with their low cost, natural and biodegradable structure.


**Key Words:** immunoglobulin g, IgG, purification, moss, phytosorbent