COMPARISON OF TWO DNA EXRACTION METHODS IN VARIED PLANT GROUPS AND PARTS

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ABSTRACT

Overtime, there are challenges being discovered related to the extraction of DNA from plant specimens. The main issue concerns the presence of secondary metabolites in plants that affects the extraction process, yielding unsatisfactory results and leads to the use of hazardous and expensive chemicals. The majority of the extraction methods are not applicable in varied plant groups. Hence, two different extraction methods are being tested which minimize the use of hazardous chemicals and still enable isolation of DNA that can be used for amplification and sequencing. The two methods used were of Edward's organic extraction method and plant mini kit from Invisorb®. Edward's organic extraction method which involved the use of Edward's buffer, TE/RNase A buffer, ethanol and isopropanol to precipitate and isolate DNA with several centrifugation and resuspension of the pellets. While the commercial kit was ready to use with the involvement of filtering, washing and eluting DNA instead of precipitation like the first protocol. Three types of plant groups were used in this study, dicotyledonous plant (*Jasminum angulare*), monocotyledonous plant (*Vetiveria zizanioides*) and fern (*Asplenium tenerun)*. Different parts of plants namely, flowers, leaves and roots were used as samples in these two protocols. The quantitative results of DNA extracted were not as high in purity and consistent as expected. However, the qualitative results of the total DNA extracted and PCR products show consistent presence of DNA which can be amplified, thus contradicting the quantitative results for *Jasminum angulare* and *Vetiveria zizanioides*. *Asplenium tenerun* showed no PCR amplification of *rbc*L gene despite the presence of total DNA. Limitations of sample size did not enable me to make a valid conclusion about which method is better, but it still provided useful information about the utility of both methods to extract DNA for downstream processes.