



Comparative Spectrophotometric Analysis of Photosynthetic Pigments in Plants Using Different Solvents

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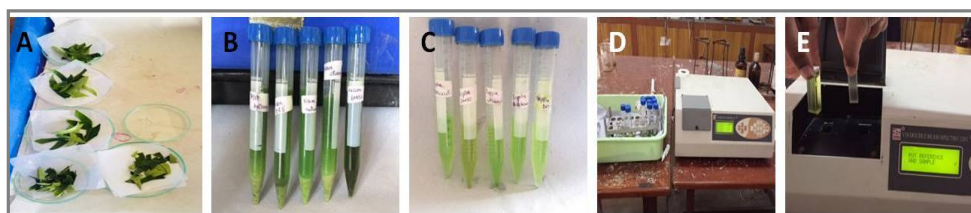
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ABSTRACT

Chlorophyll-a is recognized as the main pigment which converts light energy into chemical energy. Chlorophyll-b is an accessory pigment which acts indirectly in photosynthesis by transferring the light it absorbs. The extraction of photosynthetic pigments (chlorophyll-a, chlorophyll-b) by different solvents depends on chemical nature of bio-molecules. For this purpose, *Azadirachta indica* (neem) and *Manilkara zapota* (sapota) leaves were selected and analysed for the determination of chlorophylls (Chl-a and Chl-b). Investigation reveals that ethanol is an optimum extractant for both chlorophyll a and b in the plants under study. The solvents DEE and acetone also performed well as good extractants of chlorophylls, while methanol and DMSO have extracted chlorophylls in least concentrations. Spectrophotometers are revolutionizing farming and extraction techniques. Portability, durability, and rapid speed of evaluation are all valuable characteristics of how color technology is making its mark in this field. Spectrophotometric analysis is important as it can help in further investigations regarding different photosynthetic pigments which play a significant role in plant metabolism.

Graphical Abstract



Extraction of chlorophylls from leaves (A) collection and weighing of leaf samples, (B) homogenization in extraction solvents, (C) supernatant extraction in different solvents, (D) and (E) spectrophotometric quantitation of chlorophyll a and chlorophyll b.

Keywords: Solvent extraction, *Azadirachta indica*, *Manilkara zapota*, Spectrophotometric analysis, Chlorophylls.