

Abstract

Standardization of Extraction of DNA from Silica-Gel Dried Leaf Sample of *Garcinia Indica* (Thouars) Choisy[†]

Anila M. Sunny^{1,*} , Sreedevi C. Nagaraj¹, Vilas Kumar Patil², Tresa Hamalton¹ and Namasivayam Ravi^{1,*}

¹ Silviculture and Forest Management Division, Institute of Wood Science and Technology, Bengaluru 560003, India

² College of Forestry, University of Agricultural Science, Dharwad 580005, India

* Correspondence: anilarachelsunny78@gmail.com (A.M.S.); nravi@icfre.org (N.R.)

[†] Presented at the 3rd International Electronic Conference on Forests—Exploring New Discoveries and New Directions in Forests, 15–31 October 2022; Available online: <https://iecf2022.sciforum.net/>.

Abstract: *Garcinia indica*, commonly known as Kokum, is a vulnerable species and endemic to Western Ghats. The fruits are commercially important and have multifarious uses. Genetic variation within the species is studied using DNA finger printing for its commercial exploitation. Extraction of DNA from *Garcinia indica* is challenging due to the presence of high level of secondary metabolites, such as polyphenols and flavonoids. The present study focuses on extraction and estimation of DNA from silica gel-dried leaves. Leaf samples were collected from two different regions of Western Ghats viz., Kukke Subramanya ($n = 4$) and Karwar ($n = 6$). The leaf samples were stored in silica gel during transportation to the laboratory, dried well in silica gel, and later stored at -20°C for long-term storage. The DNA was extracted with 4% Cetyl trimethyl ammonium bromide (CTAB). The concentration of polyvinyl pyrrolidone (PVP) and β -mercaptoethanol was modified in extraction buffer to reduce the interference of secondary metabolites. The determination of quality and quantity of DNA are essential for amplification of DNA in PCR. The DNA obtained showed absorbance ratio (A_{260}/A_{280}) between 1.6–1.9 indicating the good quality of DNA and the quantity varied from 111.8–297.9 ng/ μL in the silica gel dried samples. In the present investigation, the modified method of extraction of DNA found to be best method for obtaining good quality and quantity of DNA from the silica gel dried leaves of *Garcinia indica*.

Keywords: *Garcinia indica*; silica-gel dried; DNA; CTAB



Citation: Sunny, A.M.; Nagaraj, S.C.; Patil, V.K.; Hamalton, T.; Ravi, N. Standardization of Extraction of DNA from Silica-Gel Dried Leaf Sample of *Garcinia Indica* (Thouars) Choisy. *Environ. Sci. Proc.* **2022**, *22*, 7. <https://doi.org/10.3390/IECF2022-13131>

Academic Editor: Rodolfo Picchio

Published: 31 October 2022

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2022 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

Supplementary Materials: The following are available online at <https://www.mdpi.com/article/10.3390/IECF2022-13131/s1>.

Author Contributions: A.M.S. carried out the sample collection in field and laboratory experiment work, data analysis and writing the draft of manuscript. S.C.N. was involved in laboratory experiment. V.K.P. helped in identification of species and collection of samples. T.H. reviewed the manuscript and N.R. carried out interpretation of data and reviewing of the manuscript. All authors have read and agreed to the published version of the manuscript.

Funding: NCPD—Forest Genetic Resources funded by CAMPA- Ministry of Environment, Forests and Climate change—New Delhi.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.