

BIODIVERSITY OF MEDICINAL AND OTHER PLANT SPECIES  
IN THE HURULUWEWA WATERSHED WITH EMPHASIS ON THEIR  
ECONOMIC UTILITY

By

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## ABSTRACT

Studying of biodiversity in an area gives valuable information for preserving and sustainable use of plant species in the area. Biological resources feed and clothe us and provide housing, medicines and spiritual nourishment. Maintaining biodiversity is more than a question of preserving plant species for their own sake. Identification, classification and documentation of these species with their economic utilities should be done in biologically-rich watersheds and reserves. Huruluwewa watershed is one such area. Thus, this study was conducted to determine species and genetic diversity of plants in the Huruluwewa watershed, considering basic information on native plant species with emphasis on medicinal, fruit and other plant species of future economic utility.

This study was carried out in different phases, namely, "reconnaissance survey" leading to specific information on the Huruluwewa watershed helpful to determine the species diversity and "identification of genetic diversity of fruit tree species" through starch gel electrophoresis techniques. The reconnaissance survey was done by collecting information on plant species and other basic information from 20 selected areas in both Dry and Intermediate zones in the Huruluwewa watershed. Plot sampling was done to collect data on floristics. An extent of approximately 2ha in each selected area covering major habitats was studied to collect information about the species diversity. Few groups of fruit tree species showing close similarities were used to establish the polymorphism through starch gel electrophoresis to identify the

genetic diversity. Glutamate oxaloacetate transaminase (GOT), phosphoglucoisomerase (PGI) and phosphoglucomutase (PGM) were used as isozyme stain recipes in electrophoretic analysis. Different banding patterns were studied to differentiate species, sub-species and varieties.

As many as 458 species belong to 90 families and 337 genera of mainly flowering plants were recorded during this study. Nearly 90% of plant species in the watershed have medicinal properties. Although few fruit species are being utilized in the area, many wild plant species produce edible fruits which can be used as fruits with genetic improvements in the future. Fire wood species, timber trees, ornamental plants, food crops, shade trees, cover crops and fodder crops are the other major groups of species categorized, based on their major economic utilities. With glutamate oxaloacetate transaminase (GOT) in the starch gel electrophoresis, different banding patterns were established for fruit tree species which show close morphological similarities, indicating genetic diversity within and among fruit tree species in the watershed. Two sub-species or varieties of each species of *Euphoria longana*, *Drypetus sepiaria* and *Aegle marmelos* and 3 different varieties of *Psidium guajava* were found during electrophoretic analysis showing diversity of fruit trees within species. *Averrhoa sp.*, *Annona sp.* and *Citrus sp.* in each group showed different banding patterns indicating diversity among species even in the same genera.

The results indicated a significantly high degree of both species and genetic diversity of plants in the Huruluwewa watershed. This watershed is an area of natural refugium for extremely rare and possibly extinct plant species. The information contained in this study may be considered to conserve, improve and utilize these valuable plant resources.