

## Participatory Approaches for Conserving Coconut Genetic Resources to Sustain Production and Livelihood Security in Coconut Growing Communities

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Conservation of diverse ecotypes of coconut with desirable traits like high yield, disease resistance *etc.* is an important activity in coconut growing communities. Root (wilt) disease is a major production constraint of coconut in Kerala especially in eight southern districts. Conserving ecotypes with resistance / tolerance to root (wilt) disease is essential to sustain the coconut production in the root (wilt) disease prevalent coconut communities. With this objective, a project funded by IFAD / COGENT / Bioversity International was implemented in three project sites in Kerala, India during 2005-08.

Three coconut communities, *viz.* Pathiyoor and Devikulangara (Alappuzha District) and Thodiyoor (Kollam District) in Kerala State were selected and survey was conducted with farmers' participation in characterizing the local ecotypes. As high as 97.5% of population comprised tall ecotypes (Evoor Green Tall, Evoor Brown Tall, Evoor Brick Red Tall and Jappanan) and only 2.5% accounted for dwarfs (Green Dwarfs and Orange Dwarfs) and hybrids. The local ecotype 'Jappanan' closely resembled 'Evoor Green Tall' ecotype. Percentage of nut weight to whole fruit weight was 40.3 and 41.0, nut weight was 691.5 g and 681.3 g, copra weight was 191.4 g and 188.2 g in Jappanan and Evoor Green Tall, respectively.

Simple Sequence Repeat (SSR) analysis was conducted to study the pattern of diversity in 90 selected coconut palms representing the six ecotypes using 14 markers. A total of 61 alleles were detected with an average of 4.35 alleles per SSR locus. The expected heterozygosity was much high in tall ecotypes (0.387-0.452) compared to the dwarf ecotypes (0.038-0.041). The overall degree of genetic differentiation was high (0.471) indicating a high level of genetic differentiation among the populations. Lower values for observed heterozygosity as compared to the expected values indicated the pedigree of disease-free mother palms. Genetic similarity was calculated using UPGMA clustering analysis. Two major clusters were noticed, with tall and dwarf ecotypes clustering separately.

Community coconut nurseries were raised in the project sites with the active participation of coconut growing members. This helped in characterizing the diverse coconut ecotypes and creating awareness about the importance of conservation.