Forest Utilization Research Division

Title of the Project:- Phenological studies and determination of sustainable harvesting limits of some important wild medicinal plants and NTFPs with active participation of users forest dependent communities in Satna Forest Division of Madhya Pradesh.

Why this Project:-

In the present study, efforts have been made to develop a technology for conservation and sustainable management of commercially important overexploited/threatened NTFPs from natural forests through community participation. As per the experimental design, six commercially important NTFP species were selected for the study on priority basis after detailed inventory of forest resources in two selected study sites, inhabited by aboriginal tribes, these sites are Nayagaon, Bhatiyachua and Surangi in Chitrakoot Range of Satna Forest Division and Maihar/ Udaipur VFCs in Maihar Range of Satna Forest Division. To develop a technology for conservation determination of sustainable harvesting limits of selected species, a systematic approach has been adopted. In the first stage, inventory study of the current status of commercially important forest was undertaken by adopting standard ecological method with direct involvement of local users communities.

Research Methodology :-

Ecological studies and inventory of wild medicinal plants: On the basis of current status and growth pattern of selected NTFPs, various treatments were applied for determination of sustainable harvesting limit. Moreover, growth pattern of each selected species in relation to regeneration potential was studied. Regeneration and harvesting rates of each species were assessed to get Regeneration Index for various treatments based on different harvesting intensities i.e. Control (No harvesting), T1 (20%), T2 (40%), T3 (60%) and T4(80%), where whole and underground plant parts of herb species (roots/rhizome/tubers/leaves) are harvested. in case of tree species, in which fruits and seeds are the utilizable part, treatment starts with control, T1(60%), T2(70%), T3(80%) and goes upto the T4 (90%). All the treatments were taken in 4 (four) replications. Regeneration capacity of the method (Murleedharan et.al,1997). New recruits were enumerated in each treatment plot and mean regeneration indices were calculated.

Study Design:- Layout of experimental plots:

After an inventory of forest resources in the selected VFC's/FPC experimental plots were demarcated on the basis of the growing potential of species selected for experimentation in each study site. The experimental plots were divided into 20 equal plots of 10mx10m size for herb species and 25mx25m for tree species. Number of plants in each plot were enumerated and marked in each plot.

Demarcation of plot: For determination of species specific sustainable limits experimental plot of laid out in two ranges of Satna Forest Division

Objectives of Research:-

- Ecological study and preparation of inventory of commercially important wild Medicinal plants potentially rich in forest ecosystem.
- Status assessment of commercially important wild medicinal plants in the study site
- Determination of sustainable harvesting limit (SHL) of commercially important MAPs and NTFPs with active community participation.
- Organize training programme for user communities for sustainable harvesting/management of wild medicinal plants and other NTFPs in JFMCs areas.

Activities Undertaken:-

- Ecological studies and inventory of wild medicinal plants
- Sustainable harvesting limit (SHL) of commercially important MAPs and NTFPs with active community participation.

Cost of the project: Rs.32.32 Lakhs

Outcome of the project:-

Observation recorded during the study period were found quite alarming particularly for *Aegle marmelos, Vitex negundo* and *Alectra parasitica var. chitrakutensis* which allowed harvesting only to the extent of 60%, 65% and 35%, respectively to maintain sustainability in natural forest. However, other species i.e. *Gymnema sylvestre* (52%), *Terminalia bellirica* (70%) and *Woodfordia fruticosa* (65%) showed comparatively higher sustainable harvesting limit.It has been observed through this experiment that every NTFP species has a site specific permissible level of harvest (sustainable limit) which is directly related to its regeneration potential. When extraction level is exceeded from this optimum level, the plant population is adversely impacted.

Alectra parasitica var *chitrakutensis* showing flowering and fruiting

Woodfordia fructicosa at Chitrakoot range

Harvesting of fruits of *Aegle marmelos* in study area

Harvesting fruits of *Terminalia bellirica*in Chitrakoot range