

ROLE OF TRIBAL WOMEN IN THE CONSERVATION OF AGRICULTURAL BIODIVERSITY OF JHARKHAND

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ABSTRACT

Role of tribal women in conservation of agricultural biodiversity was studied keeping in view the threat from hybrid and genetically modified seeds. 64 samples of women from all over the Jharkhand were taken for the study. There are 32 tribal groups in Jharkhand. During investigation it was found that women play very important role in food production, seed selection, storage, harvesting, food processing and maintaining soil fertility. Women collect various wild plants and grow them in their kitchen gardens to conserve some rare species and traditional food crops given in the list. Thus it is concluded that tribal women with their respect and sense of tradition and culture can play an important role in biodiversity conservation.

INTRODUCTION

Jharkhand is a state in eastern India carved out of the southern part of Bihar in November, 2000. It has an area of 79,714 Km². The state has a population of 26.90 million. The population consists of 28% tribal, 12% scheduled castes and 60% others. The sex ratio is 941 females to 1000 males. Most part of the state lies on the Chotanagpur Plateau, which is the source of rivers like Koel, Damodar and Subarnrekha. The climate is moderate with summers ranging from 16^o – 45^o C and winters from 10^o – 28^oC. Soil composition varies from red soil (Damodar Valley) micaceous soil (Koderma) black soil (Rajmahal) to laterite soil (Santhal Pargana).

Present study was undertaken to find out the role of tribal women in conservation of biodiversity in Jharkhand keeping in view modern monoculture practice in agriculture and invasion of hybrid and genetically modified seeds.

MATERIALS AND METHODS

Study was undertaken with women of sample size 20 of different tribal groups of Jharkhand. Two samples were taken for each tribal group, thus, total samples were 64 spread all over the state. Data collected were analyzed to find the agricultural crops grown and agricultural practices undertaken. Jharkhand has 32 tribal groups. Women (Fig. 1, 2, 3) take leading role in agriculture and house hold activities. Tribal groups of Jharkhand are:

- Asur • Birhor • Kisan • Mal paharia • Baiga
- Chero • Kora • Munda • Banjar • Chick Baraik
- Korwa • Oraon • Bathudi • Gond • Kol
- Parhaiya • Bedia • Gorait • Kanwar • Santhal Paharia
- Binjhia • He • Khond • Sauria • Bhumij
- Kharwar • Lohra • Savar • Birjia • Karmali
- Mahli • Ho



Figure 1: Tribal women of different tribal groups



Figure 2: Women tilling the field

Figure 3: Women transplanting paddy

RESULTS AND DISCUSSIONS

Biodiversity and agriculture are strongly interdependent because while biodiversity is critical for agriculture, agriculture can also contribute to conservation and sustainable use of biodiversity. The loss of diversity in food crops is the greatest threat to food,

fodder, fuel and fiber. Biodiversity is essential to maintain ecosystem services such as soil and water conservation and also allows adaptation to climatic change (Goel et al. 1984).

In agriculture societies around the globe women have tended to be the custodians of biodiversity. Tribal and rural women living mostly in biodiversity rich areas possess a wealth of knowledge to use and conserve plant genetic diversity (Verma and Jha 1996). This knowledge, collected and developed over years of observation by trial and error, inference and inheritance has remained with the tribes (Devadas 1994).

During investigation it was found that in Jharkhand, tribal women play an important role and take part in all activities right from farming, collecting food, fodder and fuel from the forest to marketing their produce in local hats. There is no restriction to their movement unlike other communities. Because of their multiple roles and responsibilities as providers of food, fodder, fuel, health care and other household needs, women have knowledge of various uses of plants. They have clear understanding of seasonal variations and availability of edible and medicinal plants. They procure food items from the wild according to the season or whenever they are required.

Men are normally responsible for mono cropping systems and women for more diversified systems such as home gardens. Such diverse systems can be referred to as “living gene banks” that are used for *in situ* conservation and sustainable use of a wide range of plant genetic resources.

Women play a very important role in food production, seed selection & storage, harvesting, food processing and maintaining soil fertility. Women collect various wild plants and grow them in their kitchen gardens. The elderly women in the family are given the honour of selecting seed for storage (Ramprasad 1999). They constitute a

“memory bank” of indigenous germplasm. Most of the tribes prefer traditional cultivars which are drought resistant and to some extent disease resistant and pest tolerant. These crops have been preserved due to the conservation habit of these communities over the years. These traditional cultivars also suit local dietary habits and can be easily cultivated without external inputs (Verma and Pandey 1991).

Analysis of data revealed that tribal women cultivate different types of food crops including some rare and traditional crops.

Plant species cultivated by the tribal communities in Jharkhand are:

I) CEREALS:

Scientific Name	Local Name	Use
<i>Avena sativa</i> L.	Jaie	As food grain
<i>Eleusine coracana</i>	Madua	As food grain
<i>Hordeum vulgare</i> L.	Jau	As food grain
<i>Oryza sativa</i> L.	Dhan	<ul style="list-style-type: none"> • As bhat (Boiled Rice) • Powder used to make “Chilka Roti” • Rice Wine, “Hadia”
<i>Panicum miliaceum</i> L.	Cheena	As food grain
<i>Panicum sumatrense</i>	Gundli	As food grain
<i>Paspalum scrobiculatum</i>	Kado	As food grain
<i>Setaria itatica</i> L.	Kauni	As food grain
<i>Sorghum vulgare</i>	Jowar	As food grain
<i>Triticum aestivum</i> L.	Makka/Janra	As food grain

II) LAGUMES:

Scientific Name	Local Name	Use
<i>Cajanus cajan</i> L.	Rahar	As pulses
<i>Phaseolus mungo</i>	Mung/Birhi	As pulses
<i>Lathyrus sativus</i> L.	Khesari/Khasari	As pulses

III) OIL SEEDS:

Scientific Name	Local Name	Use
<i>Azadirachta indica</i>	Neem	As medicinal oil
<i>Brassica campestris</i>	Sarson/Be swar	As edible oil
<i>B. juncea</i>	Rai	As edible oil
<i>Carthamus tinctorius</i> L.	Kusmi/Kusum	As edible oil
<i>Guizotia abyssinica</i>	Surgunja/Ramtala	As edible oil
<i>Linum usitatissimum</i>	Alsi/Adri	As edible oil
<i>Madhuca indica</i>	Mahua/Kachra	As edible and medicinal oil
<i>Pongamia pinnata</i> L.	Karanj	As an antislptic, lamp oil and biofuel.
<i>Sesamum indicum</i> L.	Til	As edible oil

IV) VEGETABLES:

Scientific Name	Local Name	Use
<i>Abelmoschus esculentus</i> L.	Bhindi/Ramtori/Ramjhing	<ul style="list-style-type: none"> • As vegetables • Dried seeds used to make beverage • As medicine
<i>Amaranthus Sp.</i>	Lalsag/Chaulai	• Leaves used to make “sag”
<i>Amorphophallus commutatus</i>	Jungli Suran	<ul style="list-style-type: none"> • As vegetables • Dried and powdered for storage.
<i>Artocarpus heterophyllus</i>	Kathal	Fruits & seeds used also as vegetable
<i>Benincasa lispida</i>	Kathua	Used to make “sag”
<i>Chenopodium album</i> L.	Bathua	Used to make “sag”
<i>Coccinia indica</i>	Kundru	As vegetable
<i>Colocasia esculenta</i>	Arvi	leaves petioles, tubers all edible, as vegetable

<i>Cucurbita pepo</i>	Kohda/ Khonar	Flowers & fruit edible, petha (sweet meat) is prepared from the fruit.
<i>Dioscoria alata</i> L.	Suran	Eaten baked boiled or ground into flour.
<i>Ipomea batatas</i>	Kanda	• Eaten raw, boiled or roaster • Green top used as fodder
<i>Legenaria siceraria</i>	Lauki/ Loa	• As vegetables • Green fruit to prepare sweets • For making water jugs & utensils.
<i>Luffa acutangula</i>	Jhinga	• As vegetables • Dried fruit used as bath sponge
<i>Lycopersicon esculenta</i>	Bilayti	Eaten raw or cooked
<i>Momordica charantia</i>	Karela/ Karla	• As vegetables. • Medicinal value
<i>Moringa oleifera</i>	Joki	• Leaves, flowers & fruits edible • Medicinal value
<i>Raphanus sativus</i>	Mooli/ Moola/ Murai	Roots and leaves eaten raw or cooked
<i>Solanum melongena</i>	Baigan	• As vegetable • Medicinal value
<i>Solanum tuberosum</i>	Alu	• Tubers as vegetables • Small tubers used to make alcohol.
<i>Tricosanthes dioica</i>	Patal	As vegetable

IV) FRUITS:

Scientific Name	Local Name	Use
<i>Agale marmelos</i>	Bel	• Eaten as Fruit. • Used to make beverage • Medicinal value
<i>Artocarpus heterophyllus</i>	Kathal	Eaten as fruits
<i>Coriaria arborea</i>	Toot	Eaten as fruits
<i>Ficus caricat</i> L.	Anjir	Figs edible
<i>Psidium guajava</i> L.	Amrood	Eaten as fruits
<i>Mangifera indica</i> L.	Aam	• Eaten as fruit • Young unripe fruits made into pickles, powdered and also used as medicine
<i>Syzygium cumini</i>	Jamun/ Jam	Eaten as fruit
<i>Zizyphus Jujuba</i>	Ber/Bair/Koer	Eaten as fruit

In addition to these the tribal women collect many useful products from the forest.

Some rare biodiversity conserved and cultivated by tribal women are:

- 1) Broom Grass (*Thysanolaena maxima*) – Panicles are used for making soft brooms.
- 2) Chironji (*Buchanania latifolia*) – Seeds are edible, used for making sweets and has medicinal value.
- 3) Nux Vomica (*Strychnos nux* – *vomica*) – Medicinal value.
- 4) Kachari / Gurmi (*Cucumis melo* L.) – Collected from crop fields and forests. Fruits eaten raw and has medicinal value.

However many tribal communities are changing their livelihood with the advent of more infrastructure, mining and other activities. In the race to catch up with the rest of “modern communities”, they are

forgetting their traditional knowledge of sustainable use of natural resources. Even those who still practice their traditional occupation of farming are replacing the local cultivars (specially the minor millets like Madua, Cheena, Kado, Gundli etc) with genetically improved varieties (specially of rice), thus promoting mono cropping. This trend is a serious threat to biodiversity conservation (Raven 1985).

Women with their respect and sense of tradition and culture can play an important role in biodiversity conservation (Ravi Shankar & Selvan 1996). There is a real danger of losing important agricultural knowledge by failing to pay attention to tribal women's farmer practices (Ravi Shankar et al. 1994).

Therefore, it is necessary to -

- Recognize the value of tribal women farmer's knowledge and skills.
- Revive the time tested local agricultural practices.
- Establish link between tribal women farmers and agriculture research institutions.
- Involving women in decision – making in agricultural biodiversity conservation strategies.

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