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Plants For Sustainable Food Security and Malnutrition: Ethnobotanical Approach

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Abstract

To establish the cause of death with some certainty is not always possible after the death has occurred, especially when the respondent (mother) is illiterate, when only symptoms can be described by her and when the health status of the child has not been monitored by a doctor prior to death. To resolve this constraint and to assess the extent to which malnutrition could have caused the deaths we took anthropometrical measurements of siblings below the age of 6 years from the families who had lost children. This was done in addition to questioning the mothers regarding the cause of death of their children.

The nutritional status of surviving siblings is important to estimate the nutritional status of the dead children. Since the economic and cultural environment is common, the nutritional status of siblings and deceased children is likely to be similar. Therefore, if the siblings are malnourished it can be assumed that the dead children were likely to be the same.

Keywords: Nandurbar, Malnutrition, deforestation, sustainable food security.

Introduction

Majority of the people in these talukas are farmers or farm labors. They depend largely on the forest for fulfilling their daily need of food, fodder and fuel wood. Many of them are engaged in selling forest produce including timber and fuel wood legally or illegally. Also many have encroached upon the forest land for cultivation. As a result of unrestricted cutting of trees, for fulfilling the needs, the once upon a time lush green forest is at present represented by denuded rocky hills (Bhatia 2005). Rain-fed agriculture is the major source of livelihood for the farmers and it supports the farm labors for a very small period of time. In the absence of irrigation facilities and use of newer technologies of crop cultivation the yield is very poor and uncertain. Also, as there are no other means of livelihood, after the harvest in November, a large number of people migrate to the nearby cities and towns for getting employment.

Child under nutrition has enormous consequences for child and adult morbidity and mortality. In addition, under nutrition reduces productivity, so that a failure to combating malnutrition effectively diminishes the potential for economic growth. In India, the situation is dire: the prevalence of underweight among children is nearly twice that of Sub-Saharan Africa, and inequalities, socio-economic, and geographic groups have been increasing more, and better, investments are needed. If India is to reach the nutrition millennium Development Goal (MDG) target, economic growth alone will not be enough (Agrawal, 2005). Along with economic growth there is need for induction of better health facilities and above all there is a need for development of sustainable employment opportunities in the area.

Methodology

In order to understand the causes of hunger deaths and to suggest possible remedies of the same a detailed survey of the district was conducted. The study was carried out in an ICDS (Integrated Child Development Services) block in the Nandurbar district in Maharashtra. Three Talukas of the district were selected for the study on the basis of the topographical difference. Akkalkuwa (hilly area with little access), Taloda (plateau region) and Dhadgaon

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(interiors of the tribal area). These are the talukas where more hunger deaths are reported during the last decade. Personal interview with the affected families and the

member of the tribal community was undertaken.

Result and Disccution

Table: 1 leafy and tuberous vegetable species consumed by tribals of Nandurbar district (Monsoon period).

Sr.No.	Botanical name(Family)	Local name	Use	Season
1.	<i>Achyranthes aspera</i> .L (Amaranthaceae)	Aghada	Food during famine.	Round the year.
2.	<i>Asparagus racemosus</i> willd (Liliaceae)	Shatavari	Roots are eaten.	August -March
3.	<i>Amaranthus tricolor</i> .L (Amaranthaceae)	Math bhaji (Tandulja)	Leafy vegetable.	October -December
4.	<i>Annona squamosa</i> .L (Annonaceae)	Sitaphal	Fruits are eaten.	April-July
5.	<i>Annona reticulata</i> .L (Annonaceae)	Ramphal	Fruits are eaten.	April-July
6.	<i>Aegle marmelos</i> .L corr. (Rutaceae)	Bel	Mature fruits are eaten.	February –August.
7.	<i>Abelmoschus manihot</i> (L) Medik (Malvaceae)	Ran bhendi	Fruit vegetable.	September -February
8.	<i>Alternanthera sessilis</i> .L (Amaranthaceae)	Tandalaya	Leafy vegetable.	All the season.
9.	<i>Amaranthus cruentus</i> .L (Amaranthaceae)	Rajgira	Grains as a staple food.	All the season .
10.	<i>Amaranthus spinosus</i> .L (Amaranthaceae)	Kateri matala / Vanjar matla	Leafy vegetable	September -December
11.	<i>Buchanania lanzan</i> Spreng (Anacardiaceae)	Charoli	Fleshy fruits are eaten.	February- April
12.	<i>Butea monosperma</i> Lam. (Fabaceae)	Palash	Flowers use as vegetable.	March - June
13.	<i>Bambusa arundinacea</i> Retz. (Poaceae)	Kaset/Bambu	Tender shoots as vegetable.	July –August end
14.	<i>Bombax cieba</i> .L (Bombacaceae)	Sawri	Inflorescences are used as vegetable.	February-June
15.	<i>Coix lacryma Jobi</i> . (Poaceae)	Ran makka /Kochura	Seeds cooked as vegetable.	August –December
16.	<i>Citrullus lanatus</i> Thunb. (Cucurbitaceae)	Dhemsas	Fruit vegetable	Round the year.
17.	<i>Canavalia gladiata</i> (Jacq.) Dc. (Papilionaceae)	Abeywel	Tender pods are eaten.	September-February
18.	<i>Curculigo orchoides</i> Gaertn. (Hypoxidaceae)	Kali moosli	Roots are eaten.	August-November
19.	<i>Cassia tora</i> .L (Caesalpiniaceae)	Powadya	Pods are cooked as vegetable.	Aug- Novmber.
20.	<i>Citrullus colocynthis</i> .L (Cucurbitaceae)	Kadu indravan	Fruits as vegetable.	Round the year.
21.	<i>Chenopodium album</i> .L (Chenopodiaceae)	Chakwat	Tender shoots with leaves as vegetables.	Oct-April
22.	<i>Celosia argentea</i> .L (Amaranthaceae)	Lambda	Leafy vegetable.	September –June or round the year.
23.	<i>Cassia fistula</i> .L (Caesalpiniaceae)	Bahava	Young leaves and flower bud as vegetable.	Apr-Jun
24.	<i>Colocasia esculenta</i> .L (Araceae)	Alu	Leafy/tuberous vegetable.	Feb-June.
25.	<i>Carissa congesta</i> Wight. (Apocynaceae)	Karvand	Fruits are eaten.	Feb-June.
26.	<i>Cordia dichotoma</i> Forst. (Ehretiaceae)	Bokar	Fruit are eaten.	May-July
27.	<i>Crotalaria juncea</i> L.(Fabaceae)	Tagada	Flowers are eaten as vegetable.	September-Fib.
28.	<i>Cyperus rotundus</i> .L. (Cyperaceae)	Motha	Tuberous vegetable	July-Nov.
29.	<i>Coccinia grandis</i> L. (voigta) (Cucurbitaceae)	Tondli	Ripe fruit are eaten	Round the year.
30.	<i>Dioscorea bulbifera</i> .L. (Dioscoreaceae)	Jagva/kadukand	Tuberous vegetable	Round the year.
31.	<i>Emblica officinalis</i> (Gaertn.) (Euphorbiaceae)	Avla	Fruit are eaten.	March-Nov.
32.	<i>Ficus palmata</i> Forssk .(Moraceae)	Jangli anjir	Fruit are consume like anjir	Fib.-July
33.	<i>Grewia tiliifolia</i> Vahl. (Tiliaceae)	Dhaman	Fruit are eaten	June-Aug.
34.	<i>Gimelina arborea</i> Roxb.	Sivan	Mature fruit are eaten.	March-Aug.
35.	<i>Hibiscus cannabinus</i> .L.(Malvaceae)	Ambadi/pendi	Tender shoot and leaves cooked as vegetable	September-Oct.
36.	<i>Lagenaria siceraria</i> Molina (Cucurbitaceae)	Dhudhi	Fruit vegetable	Nov.-Fib.
37.	<i>Luffa cylindrica</i> .L.(Cucurbitaceae)	Gilka	Fruit vegetable	Dec.-Fib.
38.	<i>Limonia acidissima</i> .L.(Rutaceae)	Kaith	Fruit are eaten	June-Jan.
39.	<i>Moringa oleifera</i> Lam.(Moringaceae)	Shevaga	Fruit and leaves are eaten.	Round the year.

40.	<i>Mangifera indica</i> .L.(Anacardiaceae)	Amba	Fruit are eaten.	Dec.-July
41.	<i>Oxalis corniculata</i> .L.(Oxalidaceae)	Tipani	Leafy vegetable	Aug.-Dec.
42.	<i>Portulaca oleracea</i> .L.(Portulacaceae)	Ghol-Bhaji	Leafy vegetable	Aug.-Dec.
43.	<i>Pongamia pinnata</i> .L.(Fabaceae)	karanj	Fruit/Flower as vegetable	March-June
44.	<i>Rumex vesicarius</i> .L.(Polygonaceae)	Ambat chukka	Leafy vegetable	Nov.-March
45.	<i>Rivea hypocrateriformis</i> Desr.(Convolvulaceae)	Fangvel	Leafy vegetable	Round the year.
46.	<i>Sesbania grandiflora</i> .L.(Papilionaceae)	Tonan/Hatga	Flower and young pod as vegetable.	August-Fib.
47.	<i>Trigonella foenum-graecum</i> .L.(Fabaceae)	Methi	Leafy vegetable	Nov.-March
48.	<i>Typha angustifolia</i> .L.(Typhaceae)	Pan-kanis	Rhizome and tender shoot as vegetable	Aug.-June
49.	<i>Urginea indica</i> Roxb. (Liliaceae)	Jangli kanda	Bulbs are cooked.	Feb-May
50.	<i>Capparis decidua</i> Forsk. (Cappridiaceae)	Karla	Fruits are eaten.	March-June

This detailed list can be used to identify the plants that have potential to be used as food for famine and food during the period of distress. This is the token list having bare minimum information. An exhaustive list can be prepared from the exiting data bases that can lead us to suggest plants that have potential to be used as weapon for combating malnutrition.

Also we tried to identify the plants that can be used as a source of carbohydrate and proteins and carbohydrates, proteins and minerals from the locally available flora. In this endeavor information from the various published sources like (Gopalan et.al. 1981,1993,1999), Duke (1985) etc. were used to tabulate the nutritional content of various plants used by tribal as food and other available plants was gathered. Later on, the collected information was tabulated according to plants used by tribal as conventional vegetables and their nutritional value, plants used as unconventional sources of food and their nutritional values, plants having higher content of B-carotene and general list of plants having potential to be used as food or supplementary food. The results of the same are presented below. Table 1 gives general information regarding the nutritional values of the plants used by the local tribal as food. From the table it is very clear that there are many plants that are rich sources of carbohydrates, protein, minerals and vitamin. To give a few examples of the same *Amaranthus spinosus* is a rich source of calcium, potassium and iron, *Amaranthus tricolor* is a rich source of phosphorous, potassium and iron. The table given below shows the mineral composition of some of the plants available and used by the local people. From the table it can be seen that there are many plants that can be used as supplementary to diet to provide calcium, phosphorous and iron.

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