

Ethnobotanical study of Socioeconomic Indigenous wine product plants used by tribals of Dhar district, Madhya Pradesh, India

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Manuscript details:

Available online on
<http://www.ijlsci.in>

ISSN: 2320-964X (Online)

ISSN: 2320-7817 (Print)

Cite this article as:

Alawa KS & Ray S (2019) Ethnobotanical study of Socioeconomic Indigenous wine product plants used by tribals of Dhar district, Madhya Pradesh, India, *Int. J. of Life Sciences*, Special Issue, A13: 169-172.

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ABSTRACT

Present paper deals with indigenous knowledge of wine product plants used by tribals of Dhar district, Madhya Pradesh. The ceremonial drink known as "Daru or Mand" in a widely spoken language in local people. It is easy to prepare with varied tastes by local people. The indigenous wine is manufactured by fermentation of cereals grains, fruits, flower and stem juice. Different strain of *saccharomyces cerevisiae* is used to produce indigenous wine. Most commonly used plants for wine product are *Madhuca longifolia* (J.koenig) , *Borassus flabellifer* L, *Phoenix sylvestries* L, *Saccharum officinarum*L, *Malinkara hexandra* (Roxb). It is consumed mostly during social and religious ceremonies. Present indigenous records 16 plant species distributing in 10 family and 12 genera which are used by tribals of the study area.

Key words: Dhar district, Ceremonial, Ethnobotanical plants, Indigenous wine, Tribes.

INTRODUCTION

Dhar district is situated in the South-western part of Madhya Pradesh state. The district lies between the latitude of 22° 1' 14" and 23° 9' 49" North and longitude of 74° 28' 27" and 75° 42' 43" East. The elevation varies from 588 m. above the sea level. The total population of the district is 2,184,672. Which is 54 percent population belongs to tribals. Major population in the district belongs to Scheduled Tribes hence district is considered as tribal district. The various tribes like *Bhil*, *Bhilala*, *Barela* and *Patelia* inhabit in the study area. *Bhil* and *Bhilala* are dominant tribals found in Dhar district are the most accounting second largest tribes in Madhya Pradesh. The study Area is Kukshi, Dahi, Gandhwani, Mandu and Sardarpur are the main pockets of tribals (Srivastava, 1984; Verma and Dixit, 1993). And they dependent on the wild biological resources for their livelihood.

A wine or alcoholic beverage is a part and partial of Bhil and Bhilala tribes in every occasion and festival.

They enjoy the local wine and also give wine to woman after delivery and newly borne baby. These fermented beverages have been consumed during and recreational and ceremonial events i.e. social gathering, marriage, naming ceremonies, festivals, settling disputes etc. it is processed and consumed mostly on special religious occasions such as wedding and festivals are Holi, Diwali, Dusshurra, Raksha Bandhan and other anytime take in local wine drink.

Fermentation is the natural process in which carbohydrates are oxidized to alcohol and other compounds by anaerobic microbes. These alcoholic beverages are manufactured by fermentation of cereals grains, fruits, and flower and stem juice. Different strains of *Saccharomyces cerevisiae* are used to produce various types of alcoholic beverages. The process relies on alcoholic fermentation conversion of sugar to alcohol by microbial enzymes.

Generally one week's time is needed for normal fermentation to take Place although ageing may take months or years. During aging secondary fermentation develop the flavor or aroma.

Few research papers have been published regarding ethnobotanical observations on *Bhil* and *Bhilala* tribes in Madhya Pradesh was done (Maheshwari *et al.*1986, Verma and Dixit 1993, Jain 2004, Maheshwari *et al.* 2004, Samvatsar and Diwanji 2004, Wagh and Jain 2010, Alawa *et al.* 2018 & Alawa, 2018). There are no published works on wine product plants used by tribes

of Dhar district Madhya Pradesh. So present study has been carried out.

MATERIAL METHODS

Ethnobotanical survey was carried out during 2018-2019. Survey and interviews were taken to gather the information's regarding plants used and methodology of indigenous wine production. Information was collected on the traditional preparation method of the wine. During field work data were verified and cross checked. The collected plants were identified with the help of flora, monographs and available literature (Mudgal *et al.*1997, Verma *et al.* 1993, Singh *et al.* 2001). Herbarium of the dried and pressed plants was prepared following standard method (Jain and Rao 1977). Photographs of important plants of wine preparation were snapped out. Confirmed deposited in the Botanical survey of India, Central circle, Allahabad.

RESULTS & DISCUSSION

Present study records 16 plants used for the production of wine by tribals of Dhar district, Madhya Pradesh. These plants are distributed in 10 families for wine production. Among them, 11 were trees, 3 shrubs and 2 were herbs and 12 species are fruits, 2 species are flowers, 2 species are stem juice and jaggeries. These wine product plants are enumerated with botanical name, family, vernacular name, plant parts used, and method of preparation (Table 1).

Table-1 Wine product plants used by tribals of Dhar district (M.P.)

S. No.	Botanical name	Family	Vernacular name	Part used	Method
1	<i>Azadirachta indica</i> A.Juss.	Maliaceae	Neem (Margosa tree)	Fruits	Dry fruits 8-10 kg. berries of <i>Azadirachta</i> and 15-16 liter water kept in old clay pot. 250 ml. fermented juice is added to inoculate and Clay pot is buried in the ground. The fermentation is complete. 4-5 liter wine is yield.
2	<i>Bombax ceiba</i> L.	Bombacaceae	Simul (Redsilkcotton)	Flowers	8-10 kg. Fruit and 16-17 liter water. 2-3 liter wine is yield. The wine production of further step is same.
3	<i>Borassus flabellifer</i> L.	Areaceae	Toddy palm	Stem juice	10-12 liter pure juice and 15-18 liter water. 3-4 liter wine is yield. The wine production of further step is same.
4	<i>Citrus lemon</i> L.	Rutaceae	Nimbu(Lemon)	Fruits	7-8 10 kg. Fruit and 15-16 liter water. 2-3 liter wine is yield. The wine production of further step is same.

Table 1: continued...

S. No.	Botanical name	Family	Vernacular name	Part used	Method
5	Citrus reticulata L.	Rutaceae	Santara (Orange)	Fruits	7-8 10 kg. Fruit and 15-16 liter water. 3-4 liter wine is yield. The wine production of further step is same.
6	Citrus sinensis L.	Rutaceae	Musambi (Sweet orange)	Fruits	7-8 kg. Fruit and 15-16 liter water. 2-3 liter wine is yield. The wine production of further step is same.
7	Ficus racemosa L.	Moraceae	Gular (Clusterfig)	Fruits	7-8 kg. Fruit and 15-18 liter water. 3-4 liter. The wine production of further step is same.
8	Ficus religiosa L.	Moraceae	Pipal (Peepul)	Fruits	10-12 kg. Fruit and 15-16 liter water. 3-4 liter wine is yield. The wine production of further step is same.
9	Madhuca longifolia (J.koen.) Macbr.	Sapotaceae	Mahua tree	Flowers	8-10 kg. flower and 15-20 liter water. 4-5 liter wine is yield. The wine production of further step is same.
10	Malinkara hexandra (Roxb.)	Sapotaceae	Khirni (Kauki)	Fruits	8-10 kg. Fruit and 15-16 liter water. 4-5 liter wine is yield. The wine production of further step is same.
11	Mangifera indica L.	Anacardiaceae	Aam (Mango)	Fruits	8-10 kg. Fruit and 15-16 liter water. 3-4 liter. The wine production of further step is same.
12	Musa paradisiaca L.	Musaceae	Kela (Banana)	Fruits	7-8 kg. Fruit and 15-16 liter water. 3-4 liter wine is yield. The wine production of further step is same.
13	Phoenix dactylifera L.	Arecaceae	Khajur (Datepalm)	Stem-juice, Fruits	8-10 kg, 4-5 kg. Fruit and 15-16 liter water. 4-5 liter wine is yield. The wine production of further step is same.
14	Phoenix sylvestris (L.) Roxb.	Arecaceae	Khajuri (Wild date)	Stem-juice, Fruit	8-10 kg. fruit and 15-16 liter water. 3-4 liter wine is yield. The wine production of further step is same.
15	Saccharum officinarum L.	Poaceae	Ganna (Sugarcane)	Gud, Juice	4-5 kg. Gud and 15-18 liter water. Wine product in 4-5 liter wine is yield. The wine production of further step is same.
16	Ziziphus Jujuba Lamk.	Rhamnaceae	Ber (Jujube)	Fruits	8-10 kg. Fruit and 15-16 liter water. 3-4 liter wine is yield. The wine production of further step is same.

Generally Flower, fruits, stem juices are used for wine production but sometime jaggeries are also used as an ingredient. It is observed that *Madhuca longifolia* yield highest production 7-8 liter of wine from 7-8 Kg. of raw mate.

It is revealed that overall method of wine production from different plant is same but quantity of ingredients and parts used are different. In all the cases plant parts used are mixed with variable quantity of water and kept

in clay pot. Fermented juice is added to inoculate the fermentation. Mouth of the pot is covered with clean cloth and buried in the ground 3-4 days' time period for fermentation time required for fermentation is varied. It takes less time in summer season and takes more time in other season. These fermented liquid kept in an aluminum vessels a clay pot having a hole is inverted placed on the mouth of aluminum vessels and hollow bamboo stem or plastic pipe is connected to the holes of the inverted pot. Aluminum vessels are allowed to boil.

Alcohol production is confirmed after one hour by fire test. Normally it takes 2-3 hours for complete alcohol production.

CONCLUSION

A wine beverage is a part of tribals in every occasion and festival. They enjoy the local wine and also give wine to woman after delivery and newly borne baby. Mostly on special religious occasions such as wedding and festivals are Holi, Diwali, Dusshurra, Raksha Bandhan and other anytime taking in local wine drink. These alcoholic beverages are manufactured by fermentation of cereals grains, fruits, and flower and stem juice. Different strains of *Saccharomyces cerevisiae* are used to produce various types of alcoholic beverages. The traditional preparation method strictly followed by tribal's young generation. Hence, considering the high sociocultural and economic values there is an urgent need of more research on the indigenous wine.

Acknowledgement:

The author is grateful to the research guide Dr. Sudip Ray, PMB Gujarati Science College, Indore and Principal Dr. H.L.Fulware & Dr. Subhash Soni, HOD, Govt. P.G. College, Dhar for providing research facilities. We are also thankful to Divisional forest Officer, Dhar for help during the tribal village's and forest areas. She is also thankful to all tribal people for their important information valuable information.

Conflicts of interest: The authors stated that no conflicts of interest.

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