

Traditional Use of *Curcuma Longa* (Halud) by the Residents of Purba Medinipur District of West Bengal: An Ethno-Medical Study

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Abstract

The *Curcuma longa*, sometimes referred to as "holud" in West Bengal, is a traditional medicinal plant that can be consumed whenever necessary and also in daily cooking. The yellow colored rhizomes are the edible or consumable component. It has been discovered that the plant is a great source of anti-oxidants, vitamins, fiber, and minerals. Today's youth, however, are less fond of consuming raw turmeric than previous generations. The primary goal of the current study is to look into and gather data regarding the use of turmeric by locals in West Bengal, India's Purba Medinipur District. From January 2023 to March 2023, the study was carried out in 8 villages in the Purba Medinipur District. The methods used to acquire data are in-person interviews and surveys using questionnaires. In addition to using it medicinally, it has been discovered that the locals use this plant extensively in many other aspects of their lives. Boils, cuts, minor to major wounds, cognitive difficulties, problems with the nerves, bowel movements, and respiratory distress are all treated with this plant. It can be said that they live their daily lives around this plant. The people of West Bengal's Purba Medinipur District frequently use the turmeric both as paste and dust as traditional medicine.

Keywords: Turmeric, Traditional medicinal system, Purba Medinipur District

Introduction

Ethnomedicine is a branch of ethnobotany studies that explains how different ethnic groups preserve their own communities' health. Although this field is frequently referred to as folk medicine or primitive medicine, the name "ethnomedicine" is seen to be more accurate (Shashikumar, 2022). Understanding the value of ethnomedicine in daily life can be greatly aided by investigating local knowledge of it and community-based medicinal plants in India. Nearly 80% of the world's population, according to the World Health Organization, relies on herbal medicines for their basic medical requirements. There are no or very few negative effects from using medicinal herbs, hence treatment is regarded as being quite safe. There is no age or gender restriction on the usage of herbal remedies. These are the explanations for why herbal medicine is becoming more and more well-liked worldwide. Most developing nations continue to employ traditional folk remedies made from various plant sources. The World Health Organization has released three volumes of its monographs on particular medicinal plants since 1999. It has been discovered that

medicinal herbs including tulsi, neem, turmeric, and ginger can treat a variety of common physiological issues. In many regions of India, both rural and urban residents, these are regarded as plants for DIY cures. Traditional remedies have been used for a very long time to address issues like high blood pressure, dysentery, piles, constipation, diarrhea, fevers, and irregular menstrual cycles. Red clover and black pepper are two herbs that are used to treat boils and cuts. By removing metabolic poisons, a variety of medicinal plants are utilized as blood purifiers to improve or resolve chronic conditions.

Turmeric is always considered a sacred plant and is also well mentioned in various literature of Ayurveda, Siddha medicine, Chinese medicine, etc. Due to its colour, it was primarily used as a dye, but gradually made its identity as a medicinal plant. It is considered to be an integral part of folklore and folk medicine. Most of the people surveyed were found to have turmeric plants in their houses. It was found to be an essential element of various rituals and worship. They used to consume turmeric as a paste, as a piece, or as an extract with water. These people also dry excess turmeric in sunlight and preserve it for the whole year. This act reflects their dependency on this plant for healing the physical body.

Various research works supported the use of turmeric as medicine to treat different physical and mental issues. Basuny and his associates in 2023 evaluated the capability of turmeric to decrease hypertension among elderly people. They also studied the liver and kidney functions after the application of turmeric powder among participants. Good improvement was found in all the cases. Yang and his associates 2023 conducted a study to evaluate the manifold properties of turmeric including antitumor, anti-inflammatory, neuroprotective, cardioprotective, and hepato-protective. In all cases, it was observed that turmeric possesses all these properties with almost no side effects if taken in a small amount. Ugo and his associates in 2022 also supported the anti-glycaemic, anti-inflammatory, and anti-oxidant properties of turmeric.

In India, the plant is widely cultivated in West Bengal, Orissa, Tamil Nadu, Andhra Pradesh, Karnataka, Assam, Maharashtra, Madhya Pradesh, and Uttar Pradesh. West Bengal is one of the most important turmeric -growing states of India (Chandra and Sagar,2004). In West Bengal significant amount of turmeric farming districts include Purba Medinipur, Paschim Medinipur, South 24pgs, Nadia, Howrah, and North 24pgs (Sengupta and Chanrasia,2001).



[Figure1: Turmeric rhizomes]*



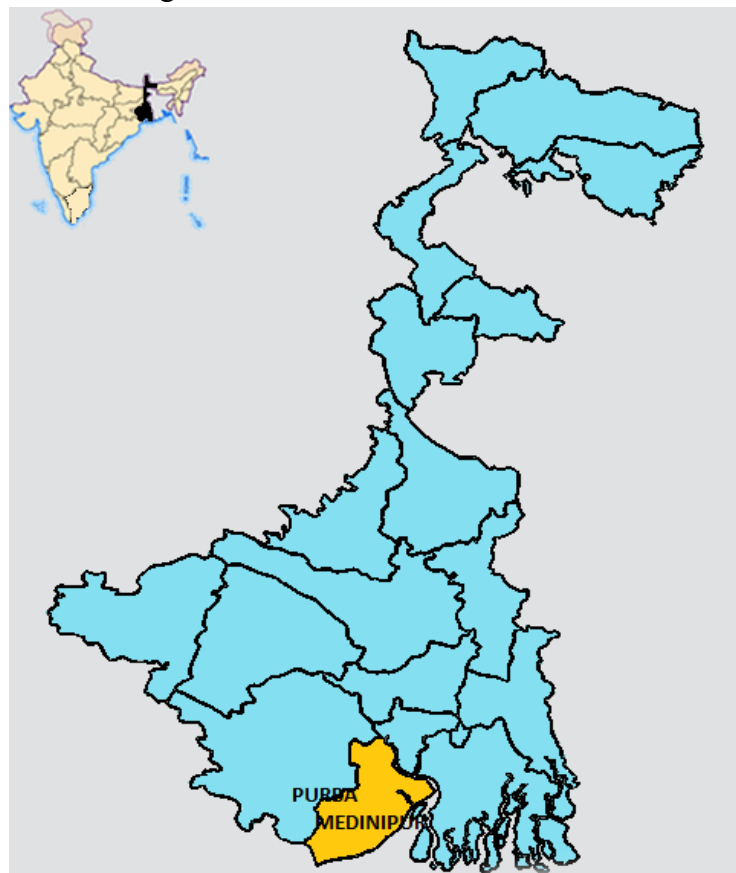
[Figure2: Turmeric plant with flowers] *

**Pictures are collected from internet sources*

The present study aims to find out the use of turmeric by the residents of Purba Medinipur district as traditional medicine. The research also widened to gather knowledge regarding the diseases which are treated by using turmeric. Purba Medinipur is selected as the study area because significant amount of turmeric is produced in this area. So, in this context, the study also aims to know the local folklore regarding the use of turmeric in this area.

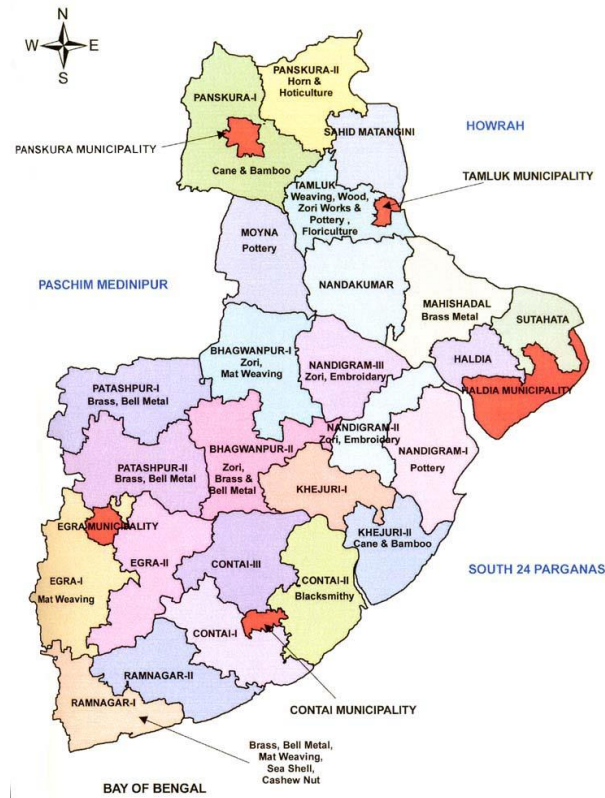
Material and Methods

Study area: A field survey was conducted from January 2023 to March 2023 in eight different villages of Purba Medinipur District of West Bengal. The selected villages come under the Ramnagar - 1 and Ramnagar - 2 blocks. Selected villages are written in **Table 1**.



*[Figure 3: Position of Purba Medinipur in West Bengal] **

ARTISAN MAP OF PURBA MEDINIPUR DISTRICT



[Figure 4: Ramnagar-1 & Ramnagar-2 blocks in Purba Medinipur]
*Pictures are collected from internet sources

Table 1: Name of the villages under study situated in Ramnagar-1 and Ramnagar-2 Blocks

| | Ramnagar-1 Block | Ramnagar-2 Block |
|----------|------------------|------------------|
| Villages | Kulbudhi | Satilapur |
| | Basantapur-1 | Deuli |
| | Basantapur-2 | Chahka |
| | Basantapur-3 | Balishi |

Method of data collection: The field survey method was applied through a questionnaire. A face-to-face interview was mostly taken. Questions included in the questionnaire include the number of family members, occupation of the family members, awareness about a critical disease like cancer, different ways of using turmeric in day-to-day life, ingredients used while consuming turmeric, etc. The research worker tried to involve the maximum number of families in the survey. Voluntary participation was appreciated.

Result

The total number of family participated in the present study (block-wise) is given in **Tables 2 and 3.**

Table 2: Number of families participated from Ramnagar-1 Block

| Name of the village | No. of families |
|---------------------|-----------------|
| Kulbudhi | 10 |
| Basantapur-1 | 09 |

| | |
|--------------|----|
| Basantapur-2 | 10 |
| Basantapur-3 | 09 |

Table 3: Number of families participated from Ramnagar-2 Block

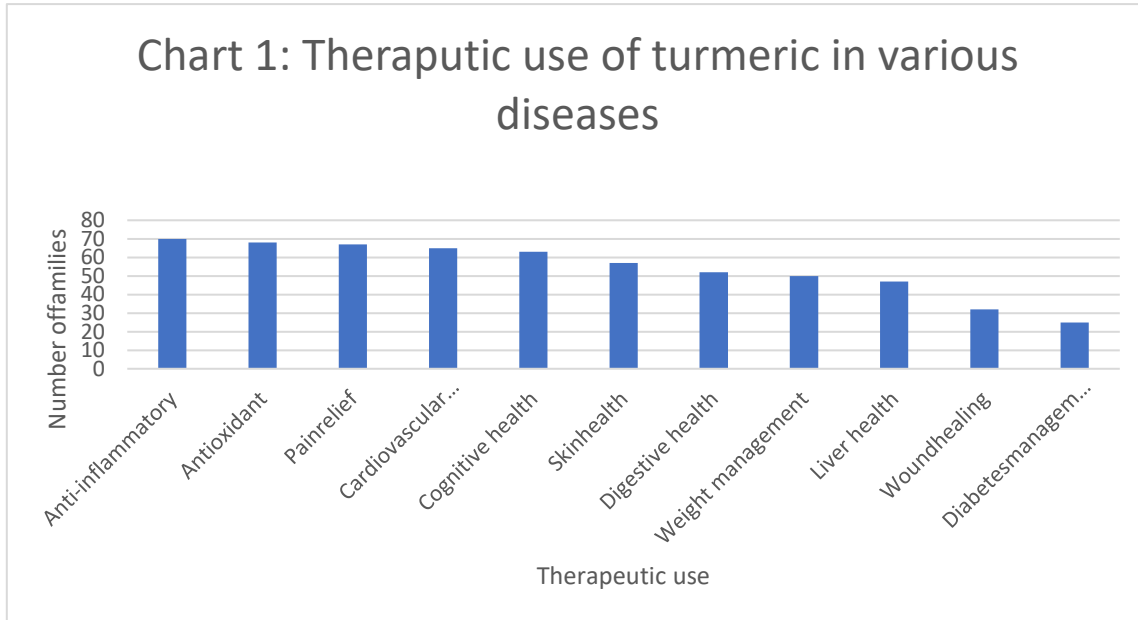
| <i>Name of the village</i> | <i>No. of families</i> |
|----------------------------|------------------------|
| Satilapur | 09 |
| Deuli | 10 |
| Chahka | 09 |
| Balishi | 09 |

A total of 38 families and 37 families participated in the present study from Ramnagar-1 and Ramnagar-2 Block respectively. A total of 75 families shared their views. The rest of the families were not interested in interaction. Most of the participating family members harvest turmeric in house. It was observed during the survey that most of the members of a family are literate. The majority of the farmers studied up to high school standards. Both male and female members participate in the cultivation process. During the interaction, it was observed that they have a clear conception regarding the use of turmeric as medicinal plant. Children of each family were found to be studying in schools.

Regarding the therapeutic use of the turmeric, it has been observed that residents use the rhizome for various therapeutic purposes. Among the inhabitants of Purba Medinipur district of West Bengal, this plant was found to be used maximally as medicine as:

- ✚ **Anti-Inflammatory agent:** It is found to be mostly used by older people to reduce inflammation in arthritis and in other cases. A paste of turmeric is usually applied with a pan in the affected area and covered with a soft cloth.
- ✚ **Antioxidant:** It is also reported to be used to treat cancer. Local people believe that daily intake of turmeric with hot rice prevents cancer.
- ✚ **Pain Relief:** Turmeric is used for conditions like osteoarthritis and rheumatoid arthritis due to its anti-inflammatory effect.
- ✚ **Digestive Health:** For good digestion, it is customary to take a teaspoon of turmeric paste with a meal in local inhabitants. It may be due to the effect of turmeric to help break down fats.
- ✚ **Liver Health:** Turmeric is also consumed in small pieces with food or even empty stomach for a healthy liver.
- ✚ **Cardiovascular Health:** Turmeric is reported to be used to reduce high blood pressure and also for patients with weak hearts.
- ✚ **Cognitive Health:** Turmeric is used for the prevention of neurodegenerative diseases like Alzheimer's among local people.
- ✚ **Skin Health:** Turmeric has been used widely among the local people to treat various skin conditions, including acne and psoriasis, due to its antibacterial properties.
- ✚ **Wound Healing:** Its antiseptic and antibacterial properties make turmeric useful for treating minor cuts and burns. Local people apply a paste of turmeric on the wound for quick healing and to stop blood-shedding.
- ✚ **Diabetes Management:** People suffering from high blood sugar are also treated with turmeric. Local belief is, that it heals the disease from the inside by making the pancreas function properly.

- ✚ Weight Management: Turmeric helps in the breakdown of fat, so people take a piece of turmeric in the early morning on an empty stomach to reduce weight.



Discussion

From the present study, it is clear that residents of Ramnagar blocks of Purba Medinipur district of West Bengal are very much dependent therapeutically on turmeric. The turmeric contains certain chemical components which are responsible for therapeutic activity. Turmeric, scientifically known as *Curcuma longa*, is a vibrant yellow spice and a well-known herb in traditional medicine, particularly in Ayurveda and traditional Chinese medicine. It is renowned for its various health benefits, many of which are attributed to its chemical ingredients. The primary bioactive compounds responsible for turmeric's healing properties are curcuminoid, with curcumin being the most prominent and extensively studied. Curcumin is the most abundant and biologically active curcuminoid in turmeric. It is a potent antioxidant and anti-inflammatory compound. Curcumin's anti-inflammatory properties are particularly significant in managing chronic diseases and conditions like arthritis, inflammatory bowel disease, and even some neurodegenerative disorders like Alzheimer's disease. Turmerones are essential oils found in turmeric and contribute to its aromatic properties. They have been studied for their potential in supporting brain health and aiding in wound healing. In addition to curcumin, turmeric contains other curcuminoid like demethoxycurcumin and bisdemethoxycurcumin. These compounds also possess anti-inflammatory and antioxidant properties, and they may work synergistically with curcumin to enhance the herb's therapeutic effects. Turmeric contains various volatile oils, such as turmerone, atlantone, and zingiberene, which contribute to its flavor and aroma. These oils have been investigated for their potential benefits, including antibacterial and anti-fungal properties. Turmeric contains essential vitamins and minerals like vitamin C, vitamin E, and manganese. These nutrients support overall health and contribute to the herb's antioxidant capabilities. Turmeric contains dietary fiber, which can aid in digestive health by regulating bowel movements and preventing constipation. Turmeric also provides a small amount of protein and carbohydrates, making it a nutritious addition to one's diet.

It is clear from the result (Chart 1) that 70 family's use turmeric as an anti-inflammatory agent. It is mostly used by the elderly people of the locality. It is also used as pain relief agent and as an anti-oxidant. Turmeric is used as an antioxidant primarily due to the presence of its active compound, curcumin, which exhibits strong antioxidant properties. Antioxidants are substances that help protect cells and tissues in the body from oxidative stress and damage caused by free radicals. Free radicals are highly reactive molecules that can harm cellular components like DNA, proteins, and lipids, leading to various health issues, including chronic diseases and aging. Here's why turmeric, with its curcumin content, is valued as an antioxidant: Curcumin has a unique chemical structure that allows it to act as a potent antioxidant. It contains multiple phenolic rings and a beta-diketone group, which are responsible for its ability to neutralize free radicals. Curcumin is highly effective at scavenging and neutralizing free radicals. It can donate electrons to free radicals, stabilizing them and preventing them from causing damage to cellular structures. Curcumin has been shown to reduce oxidative stress in the body. It can inhibit the production of reactive oxygen species (ROS), which are a major source of oxidative damage. Curcumin has been found to stimulate the activity of the body's own antioxidant enzymes, such as superoxide dismutase (SOD), catalase, and glutathione peroxidase, thereby boosting the body's natural defence against oxidative stress. Curcumin helps protect cellular components, including DNA, lipids, and proteins, from oxidative damage, which is crucial for maintaining cell integrity and function. Inflammation is closely related to oxidative stress. Curcumin's anti-inflammatory properties can indirectly support its antioxidant role by reducing inflammation, which is often associated with increased oxidative stress. Curcumin can prevent the peroxidation of lipids, which is a common consequence of oxidative stress. Lipid peroxidation can lead to cell membrane damage, and curcumin helps mitigate this effect.

Because of its potent antioxidant properties, curcumin has been studied for its potential role in reducing the risk of chronic diseases, such as heart disease, cancer, and neurodegenerative disorders like Alzheimer's disease. It is also believed to have anti-aging effects by protecting cells from oxidative damage. However, it's important to note that curcumin's low bioavailability can limit its effectiveness, which has led to the development of various formulations and delivery methods to enhance its absorption. Incorporating turmeric into diet or using curcumin supplements can be a beneficial way to introduce these antioxidant properties into your daily routine. However, it's advisable to consult with a healthcare professional before making significant dietary or supplementation changes.

Conclusion

It is quite clear from the present study that, the local people of Ramnagar-1 and Ramnagar-2 Blocks of Purba Medinipur District of West Bengal are very well habituated in using turmeric in traditional therapeutic ways. The turmeric is used for therapeutic purposes either as a paste or dust. Sometimes it is applied with constituents like pan, lime, mustard oil, and cod liver oil. The main ailments that are treated by the application of turmeric are inflammation, pain, indigestion, fatty liver, cognitive issues, wound, weight management etc. So, it is confirmed that turmeric proved to be beneficial in different aspects and it becomes an integral part of the day-to-day life of the natives of Purba Medinipur district.

Future scope of the study

The present research is central to some villages in the Purba Medinipur district. In the future study can also be extended to other villages. Paschim Medinipur district can also be further included in the future study.

Conflict of interest

Authors declare no conflict of interest

Acknowledgments

The research workers are cordially thankful to all the participants of the survey during the course of the study.

Funding

No funding

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