



Utilization of Traditional Herbs, Spices, Seasoning and Condiments: A Case Study of the Preparation of “Buknu” in Selected Villages of Kanpur, Uttar Pradesh, India

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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Case Report

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ABSTRACT

Majority of the world's population is still using the traditional herbal food for their healthcare. India has a good amount of diversity in spices like black pepper, cardamom, ginger, turmeric, cinnamon, tamarind and garcinia. The other important spices relevant to India are coriander, fennel, fenugreek, cumin, nutmeg, clove and vanilla.

Aim: The present case study highlights traditional uses of different parts of medicinal plants for preparation of traditional spice called as “Buknu”, also the therapeutic activity and various pharmacological effects of the medicinal plants used in the formulation of this spice.

Place and Duration of the Study: The documentation of the medicinal properties of the ingredients of Buknu was also done by personal interviews with the local inhabitants and healers in the selected villages of Bhognipur Tehsil of Kanpur Dehat district in Uttar Pradesh during October to November 2015.

Methodology: A review of literature was carried out using several resources through online internet searches, including scientific databases such as Pubmed, Science Direct, Google Scholar, etc.

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Results: Buknu is a very ancient recipe and has medicinal values; it is consumed as spice and condiments and also can be used as an ingredient in many digestive preparations such as churan. It is found to have a high therapeutic value due to presence of around 21 types of herbal drugs. The present work is an effort to document the traditional method to prepare Buknu and the medicinal properties of various ingredients used in the preparation of Buknu.

Conclusion: The present study documented a unique preparation of spice traditionally called "Buknu" the word means "to grind", it is given such name because of its preparation by grinding the mixture of several spices. It is very good and healthy due to its ingredients which have been mentioned in the study. It's digestive and good for stomach. Its preparation is quick and convenient which gets it an edge over other preparation of spices.

Keywords: Buknu; traditional preparation; spice and condiments; documentation.

1. INTRODUCTION

India is known as the "The home of spices". There is no other country in the world that produces as many kinds of spices as India. India is the largest producer, consumer and exporter of spices. The climate of the country is suitable for almost all spices because of diverse agro-climatic regions comprising tropical, sub tropical and temperate regions, where we can grow various kinds of spices [1,2,3]. Among the 109 spices listed by International Organization for Standardization, India grows about 60 and Indian spices flavor foods in over 130 countries [4,5,6]. India has a share of 46 per cent by volume and 23 per cent by value, in the world market. India also has a worldwide reputation as the only country which produces almost all kinds of spices and it is through these spices exports the country earns the much needed foreign exchange over a long period of time. The Indian spice export basket consists of around 50 spices in whole form and more than 80 products in value added form.

India accounts for 25—30% of world's pepper production, 35 % of ginger and about 90% of turmeric production. Among the Indian Federal states, Kerala tops in pepper (96%), cardamom (53%), and ginger (25%) production in the country. Andhra Pradesh leads in chilly and turmeric production in the country with 49% and 57%. In coriander, cumin and fenugreek production in the country, Rajasthan emerges as the largest producer with 63%, 56% and 87% of domestic production [7,8]. Egypt, Iran, Pakistan, Turkey, Iraq, Morocco, Italy are important competitors in spices production. A spice is a dried seed, fruit, root, bark or vegetative material used in nutritionally insignificant amount as a food supplement for the reason of flavoring,

Condiments are usually a combination of herbs and spices blended in a liquid form [6,9,10]. Important spices like black pepper, cardamom, ginger, turmeric, cinnamon, tamarind and garcinia are native to India. The climate of the country is suitable for almost all spices because of diverse agro-climatic regions comprising tropical, sub tropical and temperate regions, where we can grow various kinds of spices. Spices may be bark, buds, flowers, fruits, leaves, rhizomes, roots, seeds, stigmas and styles or the entire plant tops. Important commercial crops from the point of view of both domestic consumption and export are cardamom, pepper, turmeric and ginger.

Spices, seasonings and condiments are mostly used to enhance taste, improve nutritional content, and improve color, texture or shelf life of foods and beverage [11,12]. Some also perform antioxidant, antimicrobial, nutritional and medicinal functions and are traditionally credited with a wide range of pharmacological and preservative properties [13,14]. Plants used as spices, seasonings and condiments are usually aromatic and pungent [15]. The knowledge and use of plants as spices and condiments is not a modern day phenomenon but is a practice that is as old as the history of mankind [16,17]. They were used during ages when technology had not advanced this much. For instance, as far back as 2000 BC, Indonesian cinnamon and pepper were used in the Middle East [18]. Currently, there is an increased use of spices in many countries because of their health benefits [18]. Numerous new dishes have been made possible because of these aromatic and pungent spices [19,20]. The increase or renewed fascination in the use of spices and condiments has occurred because of: exposure to different national dishes by the international air-travelling public, migration of

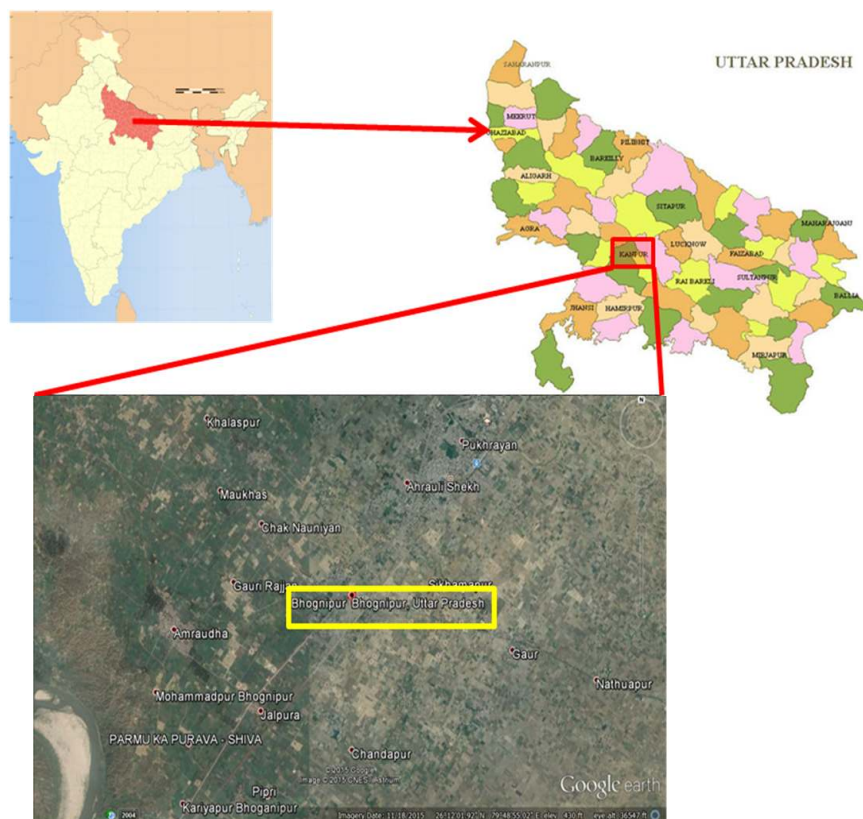


Fig. 1. Study area of the research

multitudes over national boundaries, greater dissemination of nutritional and techniques through the mass media, and the sudden demand of the consuming public for more flavored, exotic, nutritious and convenient foods [19]. Whatever the reason, one can readily observe an increase in ethnic-oriented restaurants in almost every large metropolitan area, where the use of a single spice or combination of unique spices, account for the many innovative, appetizing dishes we have available today [21].

Information about these spices, seasonings and condiments are rarely documented but passed on by word of mouth over several generations [22]. Anecdotal evidence suggests most of these spices, seasonings and condiments (especially the local ones) may still be rather crude, not standardized, and not based on sound scientific principles, making their consumption in their present form unsuitable. Documenting such information would not only go a long way to help Food Scientists and Technologists especially those in West Africa process and refine such technologies [22], but would serve as a reference

source and data of Ghanaian spices, seasonings and condiments. This information could be used by the Codex Alimentarius Commission, which is interested in identifying all food additives regardless of whether they are approved for use by consumers.

The use of medicinal plants as herbal remedy is a part of traditional heritage in many rural areas of India, the raw drugs used for buknu preparation are good source for curing digestive problems, herbal drugs consist of a number of active phytoconstituents which has furnished mankind with a number of remedies and food source in developing countries, the formulation Buknu have high therapeutic value due to presence of various raw drugs (Table 1). The article highlights the information on formulation "Buknu" by giving due consideration to the ethnobotany, traditional uses and summary of various pharmacological activities. Buknu is a herbal formulation prepared in various districts of Kanpur, Uttar Pradesh, India, using 21 herbal drugs and has been used for digestive problems, used as spice and condiments in cooking.

Table 1. Scientific name, family, common name, part used, habit and medicinal properties of the ingredients used in the preparation of Buknu

S. no.	Scientific name	Family	Common name	Habit	Part used	Medicinal properties
1.	<i>Amomum subulatum</i> Roxb.	Zingiberaceae	Badi elaichi	Herb	Pods	Stimulant, stomachic, alexipharmic and astringent [19].
2.	<i>Brassica comprestis</i> L.	Brassicaceae	Sarso	Herb	Seed oil	Antiviral, antibacterial, anticancer, antiandrogen [22,23].
3.	<i>Cinnamomum zeylanicum</i> Blume	Lauraceae	Dalchini	Tree	Bark	Antimicrobial, antiparasitic, lowering of blood glucose, blood pressure and serum cholesterol activity, antioxidant and radical scavenging activity, antisecretagogue, antiulcer, anti-inflammatory, antinociceptive, hepatoprotective and wound healing properties [24].
4.	<i>Coriandrum sativum</i> L.	Apiaceae	Dhania	Herb	Seeds	Diuretic, antioxidant, anti-diabetic, anti-constipant, sedative hypnotic, antimicrobial, antimutagenic, antihelminthic [25].
5.	<i>Cuminum cyminum</i> L.	Apiaceae	Jeera	Herb	Seeds	Antioxidant, anticholesterol, antimicrobial, antifungal.
6.	<i>Curcuma longa</i> L.	Zingiberaceae	Haldi	Herb	Rhizome	Carminative, mild digestive, treatment of Cancer and Alzheimers disease, removes mucus in the throat, leucorrhoea, wounds healer, dysentery roasted [5].
7.	<i>Elettaria cardamomum</i> (L.) Maton.	Zingiberaceae	Elaichi	Herb	Pods	Antibacterial, gastroprotective, blood pressure lowering activity, anti-inflammatory, analgesic, antispasmodic, antioxidant, insecticidal, haematological, lipid peroxidation activity, skin disorders, sedative and anticonvulsant activity and cigarette de addiction activity [26].
8.	<i>Emblica officinalis</i> Gaertn.	phyllanthaceae	Amla	Tree	Fruit	Antidiabetic, hypolipidemic, antibacterial, antioxidant, antiulcerogenic, hepatoprotective, gastroprotective and chemopreventive properties [27].
9.	<i>Ferula assafoetida</i> L.	Apiaceae	Hing	Herb	Latex	Antispasmodic, antifungal, antioxidant, anti-diabetic, antimicrobial, antiulcer, hepatoprotective, antihemolytic, chemopreventive, antiviral and antihypertensive [3].

S. no.	Scientific name	Family	Common name	Habit	Part used	Medicinal properties
10.	<i>Foeniculum vulgare</i> Mill.	Apiaceae	Soef	Herb	Seeds	Antioxidant, cytotoxic, anti-inflammatory, antimicrobial, bronchodilator, estrogenic, diuretic, lithontripic, galactogogue, emmenagogue, antithrombotic, hypotensive, gastroprotective, hepato-protectivememory enhancing and antimutagenic activities [28,29].
11.	<i>Helicteres isora</i> L.	Malvaceae	Marodphali	Shrub	Fruits	Antioxidant, hypolipidemic, antibacterial, antiplasmid, cardiac antioxidant, antiperoxidative, brain-antioxidation potency, anticancer, antinociceptive, hepatoprotective, antidiarrheal and wormicidal activity [6,30].
12.	<i>Mesua ferrea</i> L.	Calophyllaceae	Nagkesar	Tree	Seed	Digestant, antimicrobial, anti-inflammatory, anti-pyretic and anti-helminthic activity [31,32].
13.	<i>Myristica fragrans</i> Houtt.	Myristicaceae	Javitri	Tree	Aril of the seed	Antibacterial, anti-inflammatory, anti-collagenolytic, antioxidant [2,33].
14.	<i>Piper longum</i> L.	Piperaceae	Pippali	Vine	Fruits	Antibacterial, anti-allergic, anti-tumor, intestinal disorders, hepatitis, respiratory disorders [10].
15.	<i>Piper nigrum</i> L.	Piperaceae	Kali mirch	Vine	Seeds	Antiapoptotic, antibacterial, anti-colon toxic, antidepressant, antifungal, antidiarrhoeal, anti-inflammatory, antimutagenic, anti-metastatic activity, anti-oxidative, antiriyretic, antispasmodic, antispermatogenic, antitumor, antihydroid, ciprofloxacin potentiator, cold extremicities, gastric ailments, hepatoprotective, insecticidal activity, intermittent fever, larvisidal activity [13,34].
16.	<i>Syzygium aromaticum</i> (L.) Merr. & L. M. Perry	Myrtaceae	Laung	Tree	Flower buds	Antiseptic, antibacterial, antifungal, antiviral and effective in inhibiting food borne parasites [14,35].
17.	<i>Terminalia bellirica</i> (Gaertn.) Roxb.	Combretaceae	Baheda	Tree	Fruit	Antioxidant, antimicrobial, antidiarrheal, anticancer, antidiabetic, antihypertensive and hepatoprotective agent [36].

S. no.	Scientific name	Family	Common name	Habit	Part used	Medicinal properties
18.	<i>Terminalia chebula</i> Retz.	Combretaceae	Harad	Tree	Fruit	Anti-oxidant, anti-microbial, anti-diabetic, hepatoprotective, anti-inflammatory, antimutagenic, antiproliferative, radioprotective, cardioprotective, antiarthritic, anticaries, gastrointestinal motility and wound healing activity [18,37].
19.	<i>Trachyspermum ammi</i> (L.) Sprague	Apiaceae	Ajwain	Herb	Seeds	Antifungal, antioxidant, antimicrobial, antinociceptive, cytotoxic, hypolipidemic, antihypertensive, antispasmodic, broncodilating actions, antilithiasis, diuretic, abortifacient, antitussive, nematicidal, antihelminthic and antifilarial [38].
20.	<i>Trigonella foenum-graecum</i> L.	Fabaceae	Maithi	Herb	Seeds	Antidiabetic, antiplasmodic, hypolipidemic, immunological, antibacterial, antihelminthic, anti-inflammatory, analgesic, antioxidant [39].
21.	<i>Zingiber officinale</i> Roscoe	Zingiberaceae	Saunth	Herb	Rhizome	Hypolipidemic, anti-emetic, chemo protective, anti-viral, antimotion, anti-nauseant, anti-inflammatory, anti-ulcerogenic [4].

2. METHODOLOGY

Ethnobotanical surveys were conducted and information regarding the ingredients and method for preparation of Buknu was collected through interviews following a semi structured questionnaire [20]. The documentation of the medicinal properties of the ingredients of Buknu was also done by personal interviews with the local inhabitants and healers in the selected villages of Bhognipur Tehsil of Kanpur Dehat district in Uttar Pradesh. Following is the methodology followed to prepare buknu.

2.1 Materials and Method to Prepare Buknu

Scientific names are given in Table 1.

- 1 gm Harad, 2 gm saunth, 2 gm turmeric and 1 gm baheda fried in 30 ml mustard oil.
- 2 gm of dry amla, 1 gm marod phalli, 5 gm cardamom, 5 gm piper, 5 gm cumin seeds,

2 gm carom seeds, 2 gm fennel and 2 gm asafetida dried roasted

- All the ingredients were grinded in pestle and mortar and mixed with 1 teaspoon of plain salt, black salt (kala namak) and rock salt (sendha namak).

3. RESULTS AND DISCUSSION

Several field visits were made in the selected villages of Bhognipur Tehsil of Kanpur Dehat district in Uttar Pradesh. Five villages were selected i.e. Pukhrayan (Dehat), Shahjhanpur, Umriya, Rurgaon, Budhera Bhoganipur on the basis of the preparation and usage of Buknu in much quantity as compared to other villages in the district. The data was collected from 10 informants inclusive of all females who prepare Buknu and use in their day to day life in cooking and also its one of the way to earn their livelihood. The Table 1 represents of the ingredients used in the preparation of Buknu and their medicinal properties.

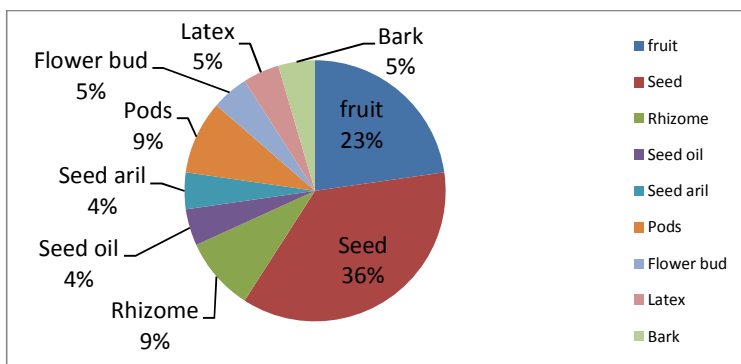


Fig. 2. Percentage of the plant part used

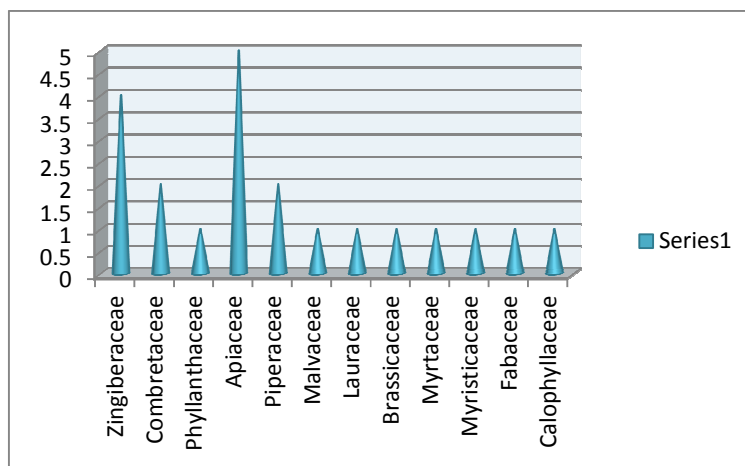


Fig. 3. Number of different documented plant families



Coriandrum sativum L.



Cuminum cyminum L.



Syzygium aromaticum (L.) Merrill & Perry



Cinnamomum zeylanicum Blume



Trachyspermum ammi Sprague



Piper nigrum L.



Curcuma longa L.

Fig. 4. Few ingredients used in the preparation of Buknu

The analysis of the table revealed that the documented plants are inclusive of 11 herbs, 1 shrub, 7 trees and 2 vines. From Fig. 2 it is

revealed that from the documented plant species for most of the plants seeds are being used for the preparation of spices. From the analysis it

was found that the documented plants belonged to various families and the most documented families are Apiaceae, Zingiberaceae, Combretaceae and Piperaceae. During documentation it was found that the local female workers are not only diligent but have got immense knowledge in the field of traditional medicine and the herbal preparation. Due to modernization, the traditional system of the herbal use is not very popular with the younger generation. Nonetheless the, knowledge of herbal use is so deeply rooted in society that there are still number of women and men in the villages who know the healing properties of many medicinal plant species and also use traditional methodologies in their day to day life in cooking and in curing various diseases.

4. CONCLUSION

India is known as the 'The home of spices'. India is the leading producer, consumer and exporter of spices in the world and meets nearly half of the global demand for spices. Spices are produced almost in all states of India. A whopping 75 spices out of 109 listed by ISO are produced in India. Harnessing the technological developments over a period of time, Indian spices have unleashed their application capabilities to cover a wider spectrum of industry verticals such as spice and food processing industries, pharmaceutical and medical segments. As a result, Indian spice industry has witnessed increasing number of varieties of value-added spices and spice products in ground, crushed, cracked, blended, dehydrated forms in bulk, in brine and in consumer packs (Examples: curry mixes, natural food colors, spice extracts, spice oil, oleoresins, organic spice varieties, etc). The present study documented a unique preparation of spice traditionally called "Buknu" the word means "to grind", it is given such name because of its preparation by grinding the mixture of several spices. It is very good and healthy due to its ingredients which have been mentioned above. It's digestive and good for stomach. Its preparation is quick and convenient which gets it an edge over other preparation of spices. This research is an effort to document and bring into the notice of people about the utilization of traditional methodologies used in the preparation of healthy spices. Due to urbanization and many modern techniques used in the preparation of spices, such traditional methodologies are facing a great threat and we are getting devoid of the actual taste of spice. This research article is an effort to rejuvenate

and encourage the traditional practices used in the preparation of spice.

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CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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