

SURVEY ASSESSMENT OF INDIGENOUS KNOWLEDGE FOR SEEDS CONSUMPTION OF SWEET BASIL AND PSYLLIUM BY LOCAL COMMUNITY IN SOUTHERN PUNJAB, PAKISTAN

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Abstract

The assessment of indigenous knowledge for seeds consumption of sweet basil and psyllium as a source of fiber by local community was carried out in different parts of southern Punjab, Pakistan. A structured questionnaire was prepared with close ended questions. Data collected were subjected to the descriptive statistic like percentage, frequency, bar and pie chart. According to the findings of surveyed analysis we concluded that 77 % people under surveyed attained the traditional knowledge about sweet basil and psyllium from family members whereas results showed that most of the people (87.50 %) who used these plants as a source of fiber were above age of 40. The study further revealed that people of local community consumed the seeds of selected plants only based on traditional knowledge and reluctant to used them more frequently. Most of the surveyed people (87.5%) used Psyllium as a source of fibers to cure the digestive problems whereas sweet basil seeds used by the people (44 %) only for seasonal recreational purposes without knowing its specific worth of efficacy. On the other hand, majority of respondent preferred to use whole grains as compared to refined grains. From these results we found clear idea for novel food product preparations in future study from seeds of selected medicinal plants in according to the needs of consumers.

Key words: indigenous knowledge, sweet basil, psyllium, respondents, seeds

INTRODUCTION

Indigenous knowledge is specific to given culture or society which is based on experiences, often tested over centuries of use [1]. From the past literature we concluded, the local communities of different regions of Pakistan have centuries old knowledge about traditional uses of the selected medicinal plants (sweet basil and Psyllium) occurring in their areas. The use of plants as medicine is an ancient practice and indigenous knowledge of plants has been transferred from generation to generation. The uses of medicinal plants vary in different parts of the country due to indigenous knowledge and method of utilization. Moreover, rich diversity of medicinal plants is an important source of livelihood for majority of the rural and mountainous communities because of low cost treatment for various common diseases. Among the plants known for medicinal value, the plants of genus *Ocimum* are very important for their therapeutic potentials. Because of its popularity basil is often referred to as King of

herbs, being widely utilized due to its economic, nutritional, industrial and medicinal properties. It is high value economical plant. Basil is an aromatic herb used extensively, from ancient times, to add distinctive aroma and flavor to food. The leaves can be used fresh or dried and the essential oils extracted from fresh leaves and flowers can be used as aroma additives in food, pharmaceuticals, and cosmetics [2]. The second plant of our study is *Plantago ovata* L. locally known as Isabgol belonging to the family Plantaginaceae is a stem less Ayurvedic herb, used in health care for many centuries in South Asia, and it is now widely used for its medicinal properties all over the world. Seed husk (rosy-white membranous covering of the seed) mainly given as a safe laxative, particularly beneficial in habitual constipation, and for chronic diarrhea and dysentery. It is also used in lowering blood cholesterol level, ice cream making and cosmetics [3]. The selected medicinal plants are traditionally used by the local communities for different purposes. The purpose of the study was to assess the

knowledge of the surveyed people in according to selected medicinal plants as a non conventional source of fiber in comparison of both selected plants.

MATERIALS AND METHODS

For the purpose of this study, people were randomly surveyed according to the requirement of current research work. Sites were chosen on the basis of easy access to the location and the availability of people. Surveys were conducted with people who live in Pakistan. Survey questionnaire were distributed through mailed on the months of June and July 2016 while oral interviews complimented the questionnaire.

Survey questionnaire contained closed questions which can be answered with a yes or no, multiple choice, or short answer [4]. They usually last for no more than a minute and do not require extended responses from participants. For the surveys, ten questions were asked and the age and gender were recorded in order to classify and understand the demography of people who use medicinal plants (See Appendix I). The survey information was then transcribed into a worksheet on Microsoft Excel.

RESULTS AND DISCUSSIONS

While evaluating results of present study' opinion and feedback of consumers really matters. Ideal way to collect this feedback is to deploy in a best suited places and make novel products from these seeds to distribute in that places so they can practically experience how new food product effects their everyday life, how much they can get energy and fiber supplement from such food products, what level of ease or difficulty they face while consuming a novel fibrous food, and overall how it can effect human activities.

The therapeutic purposes of medicinal plants are as old as human civilization. According to literature [5] about 20 % of the whole plants are successfully utilized for curing the ailments in human beings.

Table 1. Taxonomy of selected medicinal plants in order to find relationship between both species

Kingdom PLANTAE – Plants	Kingdom PLANTAE
Sub-kingdom TRACHEOBIONTA– Vascular plants	Sub-Kingdom VIRIDIPLANTAE
Division MAGNOLIOPHYTA – Flowering plants	Division TRACHEOPHYTA
Class MAGNOLIOPSIDA – Dicotyledons	Class MAGNOLIOPSIDA
Subclass ASTERIDAE	Subclass ASTERIDAE
Order LAMIALES	Order LAMIALES
Family LAMIACEAE – Mint family	Family PLANTAGINACEAE
Genus <i>OCIMUM L.</i> – basil	Genus <i>PLANTAGO</i> (Plantain or Indian-wheat)
Species <i>Ocimum Basilicum</i>	Species <i>Plantago Ovata</i>

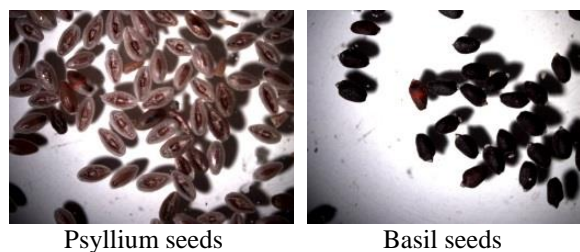


Fig. 1. Visual Observation of seeds of selected medicinal plants

Because of this fact selected medicinal plants of our study contributed to treatment of various ailments such as digestive problems, constipation and lowering the cholesterol level in human beings from history to date.

Although it was not possible but as an alternative we conducted a questionnaire based survey by providing respondents with supplementary information about the proposed work and its application. We distributed this questionnaire in local community and academia people who have knowledge about these plants. Although a few of them responded yet we analyzed their responses and this analysis is given here.

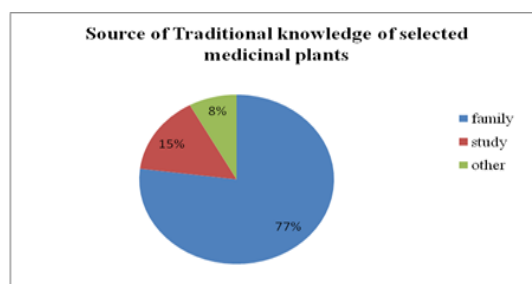


Fig. 2. What is source of traditional knowledge among surveyed respondents?

Figure 2 demonstrated that source of traditional knowledge about selected medicinal plants under surveyed. The results showed that 77 % surveyed people attained the traditional knowledge about sweet basil and psyllium for what purpose these plants used and consumed for health problem due to seasonal variations from their family members and 15 % people gained that knowledge from careful scientific study of selected medicinal those surveyed people might be belonged to that field of interest. We conclude from these observations, traditional knowledge about these selected medicinal plants still in the pipe line of scientific analysis.

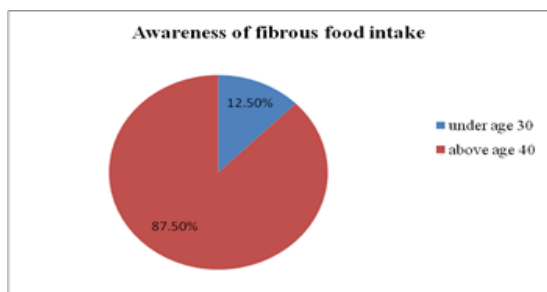


Fig. 3. Surveyed respondents awareness of fibrous food intake in relation to age factor

Figure 3 represented surveyed respondents awareness of fibrous intake in relation to age factor. The results showed that most of the people (87.50 %) who used these plants as a source of fiber were above age of 40. Many of the people under the age of 40 were at least aware of their existence but did not use medicinal plant more frequently as compared to other group of people. Some of them were unaware that actually these medicinal plants use as source of fiber which is due lack of knowledge in this category of surveyed people.

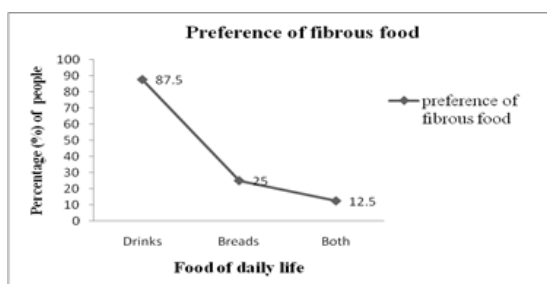


Fig. 4 What is preference of fibrous food intake among surveyed respondents?

From the above Figure 4, we came to know that most of surveyed people used these plants as source of fiber for cure of digestive problems but preference of intake was in the form of drinks which can be easily prepared in the home and has additional property of cooling in the summer season. For example Psyllium husk is commonly used by the people for laxative purpose and basil seeds soaked in water and sugar added drinks traditionally used by the people for cooling effect in summer. But until now there is no scientific study conducted to check the efficacy of these plants in this regards.

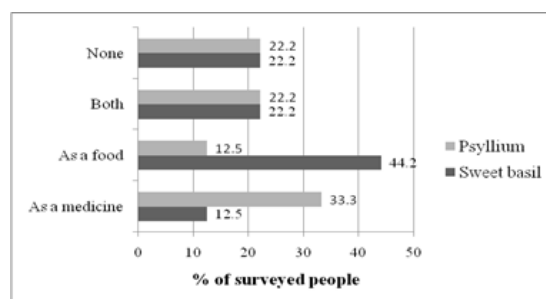


Fig. 5. Relationship between respondents for what purpose they used seeds of selected medicinal plants

From the Figure 5, results indicated that 33.3 % surveyed people used the psyllium husk as a medicated purpose whereas sweet basil seeds used by the people (44.2%) for recreation purposes. There is need to make more scientifically proven usage of these plants in daily life for both purposes such as medicinal and food.

The psyllium husk is considered as safe with least adverse effects on human health with sufficient amount of soluble fiber as compared to other cereals. Psyllium as naturally occurring source of soluble fiber it has gained increased importance in food industries [6].

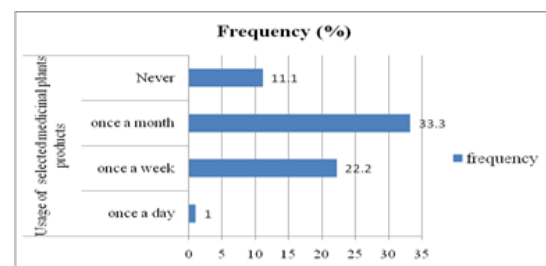


Fig. 6. Frequency (%) distribution of usage of selected medicinal plants among respondents

According to the above Figure 6, we concluded that frequency of usage of these selected medicinal was fall in category of once in a month if they feel to have some change from counter the medication for cure of common ailments. Based on these observations, 33.3 % people used these plants once in a month and then 22 % people used these plants once in a week. In our opinion, this long interval frequency of usage might be due to unaware of proper benefits of these plants that are reasons they were reluctant to consume them more frequently.

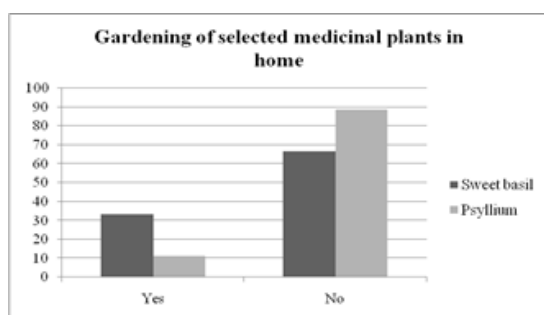


Fig. 7. Respondents opinion about gardening of selected medicinal plants in home

In the above figure 7, the respondents have also been asked about gardening of selected medicinal plants. The opinion of respondent was assessed by two categories i.e. YES or NO. By this binomial type of question, we assumed that only sweet basil plants contain more yes for gardening of this plant in home for that might be due to traditional purposes. As there is huge scientific literature found for usage of sweet basil plant for traditional and ritual bases recorded from history to date. This depicted the importance of selected medicinal plant (sweet basil) more specific. According to the results of above question, 33.3 % was in the favour of gardening the sweet basil in home not only for the pleasant fragrance but also for ritual and recreational purposes. On the other hand the less people were agreed to grow psyllium plant in home. In the last and the foremost question in our survey was to know about the people opinion which kind of grains they preferred to consumed as a source of nutrients.

Under surveyed people 66.6 % people preferred to consumed whole grains as compared to refined grains.

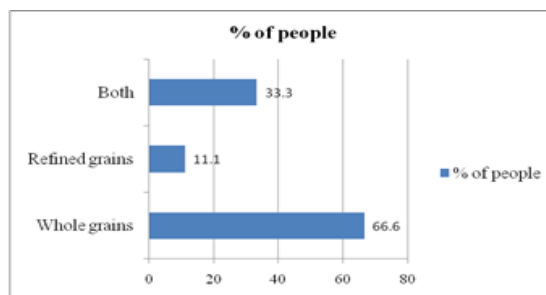


Fig. 8. Respondent opinion about what type of grains they consumed as a source of fiber

Many of them preferred to consume both grains as whole and refined. But majority of surveyed people preferred to consume whole grains because of complimentary nutrients are integrated in the whole grains.

The purpose of this question was to analyses the response of people for better preparation of novel food products utilizing whole grains more preferably according to the need of consumers.

CONCLUSIONS

Our study has a value addition in the exiting indigenous knowledge regarding the utilization of seeds of selected medicinal plants for various purposes.

The study highlights the people interest in sweet basil seeds as non conventional source of fiber and how frequently they are using these plants seeds in their routine life.

This present study better comprehend the consumer's response for better and effective use of these plants in the food products. Present investigations highlights efficacy of selected medicinal plants in comparison in order to conclude which plant has better contribute as source of fiber according to opinion of respondents.

ACKNOWLEDGMENTS

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Appendix I

Study on selected medicinal plants *Plantago ovata* (Isabgol, psyllium) and *Ocimum basilicum* (sweet basil) for value addition in food products. A BRIEF SURVEY

Keeping in mind that *Plantago ovata* and *Ocimum basilicum* medicinally important plants are little bit neglected species in this kind of nutritional estimation, it is decided to investigate their nutritional values that might be helpful for increasing the wealth of medicines and enrichment of functional food products. Research on plants species including medicinal, aromatic and staple food plants have been carried out to investigate nutrient constitutes providing large portion of daily human food consumption. However, there are little works in literature that concern to determine the worth of these plants together i.e. *Plantago ovata* and *Ocimum basilicum*. This work might be helpful for consumption of mucilage (source of soluble fiber) from seed of basil with non conventional source of fibers and fats. Furthermore, sweet basil seeds and psyllium husk in drinks has multiple benefits for gastrointestinal problems in daily life.

Survey Questions

Location:

Circle One:

- Female
- Male

Age:

- (18-20)
- (21-30)
- (31-40)
- (41-50)
- (51+)

(1)Have you ever used Psyllium and Sweet basil seeds and leaves for medicinal and or cooking purposes?

(YES) (NO) If so which do you use most often?

(2)Do you ever use medicinal plants (Psyllium and sweet basil) for digestion problems in place of manufactured products (i.e. Lactulose, Aspirin etc)?

(YES) (NO) If so, which ones most often?

(3)If you use medicinal products how often do you use them?

- Once a day
- Once a week
- Once a month
- Never
- Other _____

(4)If you use these plants for medicinal purposes where did you learn it from

- A family member
- A book/magazine
- Other _____

(5)Do you gardening Psyllium and sweet basil in your home?

(YES) (NO)

(6)Which medicinal plant more frequently use as source of fiber intake?

- Psyllium husk
- Mucilage of sweet basil seeds

(7)Preference of fiber intake from which food products

- Bread
- Drinks

(8)Fibrous food awareness in which level of people?

- Young (15-30 years)
- Old (35-50 years)

(9)Which age group intake more fibrous food?

- (18-20)
- (21-30)
- (31-40)
- (41-50)
- (51+)

(10)Do you eat whole grains (i.e. whole grain bread, brown rice etc?) or refined grains?

Thank you for your cooperation!

