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Assessment of awareness and significance of *Poi* (*Basella L.*) among women at Sardarkrushinagar Dantiwada Agricultural University, Gujarat

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Abstract

Green leafy vegetables like *Basella L.* (*Poi* or Malabar spinach) are rich in fiber, vitamins and bioactive compounds, making them highly nutritious and beneficial for addressing lifestyle-related diseases and micronutrient deficiencies. Despite its potential to combat health issues like vitamin deficiencies, cancer and heart diseases, *Poi* remains underutilized due to limited awareness and misconceptions. A study of 150 women at Sardarkrushinagar Dantiwada Agricultural University (SDAU) revealed that while 42 percent were aware of *Poi*, only 36 percent used it, mainly as food or medicine. Accessibility and cultivation were limited, with 52 percent lacking a source for *Poi* and 76 percent not consuming it. The findings highlight the need for educational initiatives to promote *Poi*'s cultivation and usage, leveraging its significant nutritional and health benefits.

Keywords: *Poi*, *Basella L.*, Malabar spinach, awareness, utilization

Introduction

In today's fast-paced world, lifestyle changes have led to diets low in fiber and antioxidants, contributing to gastrointestinal and heart diseases. Micronutrient deficiencies are widespread, especially in developing countries. To address this, adding green leafy vegetables to meals is essential for improving nutrition.

Indigenous vegetables, such as *Basella L.* (commonly known as *Poi* or Malabar spinach), are highly nutritious but often overlooked due to a lack of awareness and the perception of them as "poor man's food." *Basella L.*, native to India and Indonesia, thrives in tropical regions and is rich in fiber, vitamins A, B and C, iron, calcium and saponins, which help fight cancer and heart diseases. It is available in two common varieties: *Basella alba* (green leaves and white flowers) and *Basella rubra* (purplish leaves and stems). *Basella alba* is also used medicinally to treat headaches, inflammation and ulcers.

Studies show its potential in addressing vitamin deficiencies; for example, incorporating powdered *Basella alba* leaves into egg noodles increases vitamin A content, benefiting children and pregnant women. Traditionally, *Basella L.* has been valued for its many health benefits, including antioxidant, anti-inflammatory, antimicrobial and wound-healing properties, making it a versatile and underutilized crop with significant potential for improving health.

Soriano *et al.* (2020) [10] investigated the use of *Alugbati* (*Basella alba L.*) leaf powder to enhance the vitamin A content of fresh egg noodles. The study found that noodles with *Alugbati* powder had significantly higher total carotenoid content (1550 µg/g) compared to the control (610

µg/g). However, the elasticity of the fortified noodles was lower, with an elongation of 16.01 mm, likely due to a weakened gluten network caused by the powder substitution. Despite this, the authors concluded that *Alugbati*-fortified noodles could serve as a valuable source of vitamin A, potentially aiding in reducing vitamin A deficiency, particularly among children and pregnant women.

Shruthi *et al.* (2012) [9] reported that rural communities in Orissa used a paste made from the root of *Basella alba* combined with rice-washed water, consumed on an empty stomach for one month, as a traditional remedy for irregular menstrual cycles.

According to Anandarajagopal *et al.* (2011) [1], *Basella alba* leaves are used in Nigerian folk medicine to treat hypertension and in Cameroon for malaria. The plant is also noted for its antifungal, anticonvulsant, analgesic, anti-inflammatory, androgenic properties and its use in treating anemia. In Ayurveda, the leaves are traditionally applied to the head about 30 minutes before bathing to promote sound and refreshing sleep.

Malabar spinach (*Basella alba* and *Basella rubra*) is a versatile plant with numerous applications in nutrition, medicine, industry, and sustainable agriculture. Nutritionally, it is a low-calorie vegetable rich in vitamins A and C, iron, calcium, and antioxidants like lutein and beta-carotene, which promote eye health and reduce oxidative stress (Gupta and Prakash, 2009; Murthy *et al.*, 2005) [2, 3]. Medicinally, it is valued in Ayurveda and folk medicine for its anti-inflammatory, antimicrobial, laxative, and wound-healing properties (Parameshwarappa and Veena, 2012; Shalini and Srinivas, 2010) [4, 7]. Its mucilaginous texture

makes it a natural thickener in soups and curries, widely used in traditional cuisines (Thakur and Singh, 2015) [11]. Industrially, its mucilage serves as a thickening agent in food and cosmetics, while the red-stemmed variety provides natural dyes (Saha *et al.*, 2014; Sharma and Verma, 2011) [5, 8]. Environmentally, it contributes to sustainable agriculture by preventing soil erosion and thriving in diverse climatic conditions (Bose and Sarkar, 2018) [6]. These multifaceted uses make Malabar spinach an essential crop for both economic and ecological purposes.

Objective

To assess the awareness of use and importance of *Poi* among local people of SDAU campus.

Methodology

- 1. Sample Selection and Data Collection:** One fifty women from Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar, who were willing to participate, were selected to assess their awareness of the use and importance of *Poi*.
- 2. Interview Schedule:** The researcher designed an interview schedule with two main sections:
 - Personal and socio-economic details, including age, education, occupation, family income, etc.
 - Awareness about the use and significance of *Poi*.
- 3. Data Collection:** Data was gathered through personal interviews using a self-structured questionnaire. The interviews were conducted at the respondents' homes within the university campus. Efforts were made to establish a good rapport with participants to ensure accurate and complete responses. The structured questions helped collect personal, socio-economic details and assess awareness about *Poi*.

Analysis of data

To gauge local awareness of *Poi*, fifty female respondents from Sardarkrushinagar Dantiwada Agricultural University were randomly selected. Data on personal, socio-economic status and *Poi* awareness were collected and statistically analyzed.

Table 1: Personal and socio-economic variables of respondents (n=150)

Sr. No.	Personal and socio-economic variables	f	%
1	Age (years)	20 to 29	27 18
		30 to 39	33 22
		40 to 49	72 48
		>50	18 12
2	Education level	Illiterate	09 06
		Primary	24 16
		Secondary	18 12
		Higher secondary	72 48
3	Family occupation	Graduate	27 18
		Farming + service	36 24
4	Respondents occupation	Service	114 76
		Home maker	126 84
5	Family monthly income (₹)	Service	24 16
		< 50000	60 40
		50000 to 100000	78 42
		100000 to 500000	12 08
	> 500000	00 00	

The data highlights the distribution of respondents across various personal and socio-economic variables. In terms of age, the majority (48%) of respondents belong to the 40-49 age group, followed by 22 percent in the 30-39 age group, 18 percent in the 20-29 age group and 12 percent aged above 50 years.

Regarding education levels, nearly half (48%) of the respondents have completed higher secondary education, while 18 percent are graduates. Smaller proportions include those with primary education (16%), secondary education (12%) and illiterates (6%).

In terms of family occupation, the majority (76%) of respondents come from families engaged in service, while 24 percent have families involved in both farming and service.

Looking at respondents' occupations, a significant proportion (84%) are homemakers, with only 16 percent engaged in service.

For family monthly income, the largest segment (42%) falls within the ₹50,000-₹1,00,000 range, followed by 40 percent earning below ₹50,000. A smaller segment (8%) earns between ₹1,00,000 and ₹5,00,000, while none reported earning above ₹5,00,000.

This data provides insight into the demographic, educational, occupational and economic profile of the respondents.

Table 2: Distribution of respondents based on awareness of *Poi*, (n=150)

Sr. No.	Awareness about use and importance of <i>Poi</i>	f	%
1.	Awareness	Yes	78 42
		No	36 24
		Heard about it	36 24
2.	Sources	Family	54 36
		Friends/colleagues	15 10
		Neighbors	21 14
		TV/Web	18 12
		None	36 24
3.	Use of <i>Poi</i> plant	As a Medicine	00 00
		As a Food	30 20
		As a Both	63 42
		None	57 38
4.	<i>Poi</i> plant found by them	Own <i>Poi</i> plant	24 16
		Other	48 32
		None	78 52
5.	<i>Poi</i> plant planted at home	Yes	24 16
		No	126 84

The data highlights varying levels of awareness and usage of the *Poi* plant among respondents. While 42 percent were aware of *Poi*, 24 percent were unfamiliar and another 24 percent had only heard of it. Family emerged as the primary source of information (36%), followed by neighbors (14%), TV/web (12%) and friends (10%), with 24 percent receiving no information. Regarding usage, 42 percent recognized *Poi* as both a food and medicine, but 38 percent did not associate it with either. Accessibility was limited, with 52 percent lacking any source for *Poi* and only 16 percent cultivating it at home. Overall, the findings indicate moderate awareness but limited cultivation and usage, suggesting a need for increased education and promotion of *Poi*'s benefits.

Table 3: Distribution of respondents based on using of *Poi*, (n=150)

Sr. No.	Using of <i>Poi</i>	f	%
1.	Use of <i>Poi</i>	Yes	57/36
		No	93/64
2.	Purpose of using <i>Poi</i>	For Eating	36/24
		For Decoration	18/12
		Don't use	96/64
3.	For eating	Leaves	36/24
		Don't use	114/76
4.	As medicine/ for medicinal purpose	Leaves	54/36
		Don't use	96/72
5.	For decoration	Whole plant	15/10
		Don't use	135/90
6.	Any other	Fruit	24/18
		Don't use	126/82
7.	Using form of <i>Poi</i>	Fresh	36/24
		Dried	00/00
		None	114/76
8.	Forms	Cooked	36/24
		Uncooked	00/00
		None	114/76
9.	Difficulty of preparing meal with <i>Poi</i>	Easy	36/24
		None	114/76
10.	Time to eat dishes containing <i>Poi</i>	For breakfast	00/00
		For lunch	24/16
		As a snack	36/24
		For dinner	36/24
		Don't eat	114/76
11.	Taste Preference	Yes	36/24
		Not Sure	114/76
12.	Taste Description	Sweet	03/06
		Astringent	09/18
		Not Sure	114/76
13.	Frequency of using <i>Poi</i>	Daily	00/00
		Often	24/16
		Sometimes	30/20
		Never	96/64
14.	Side effects of <i>Poi</i> plant	Yes	00/00
		No	24/24
		Don't know	114/76
	Know about types of <i>Poi</i> plants	Yes	18/12
		No	126/84

The data shows that a majority of participants (64%) do not use *Poi*, with only 36 percent reporting its use. Of those who use *Poi*, most (24%) use it for eating and a smaller portion (12%) use it for decoration. When consumed, *Poi* is mainly used for its leaves (24%). For medicinal purposes, 36 percent of participants use *Poi* leaves, but 72 percent do not. Only 10 percent use *Poi* for decoration and 18 percent use its fruit, while the majority (82%) does not use *Poi* in any other form. Most respondents (76%) do not use *Poi* in any form (fresh, dried, or cooked) and 24 percent report that preparing meals with *Poi* is easy. In terms of when *Poi* is consumed, it is most commonly eaten as a snack (24%) or at dinner (24%), while 76 percent do not consume it at all. Regarding taste, 24 percent like the taste of *Poi*, with 18 percent describing it as astringent and 6 percent as sweet, while 76 percent are unsure of its taste. Most participants (64%) never use *Poi*, while 16 percent use it often and 20 percent sometimes. There were no reports of side effects from using *Poi*, but 24 percent of respondents said they did not know about the potential side effects. Furthermore, 84

percent of participants were unaware of the different types of *Poi* plants, while only 12 percent knew about them. This suggests that while *Poi* is somewhat recognized for its medicinal and edible uses, its overall usage remains limited and there is a lack of awareness about its varieties and side effects.

Conclusion

Basella alba (Malabar spinach) is a highly nutritious and versatile plant with significant potential for improving health, particularly in addressing micronutrient deficiencies. Despite its valuable medicinal and dietary benefits, awareness and usage of *Poi* remain limited, especially in local communities. Efforts to promote its cultivation and consumption, along with increasing knowledge about its various uses, could help harness its full potential for enhancing nutrition and overall well-being. The findings suggest a need for further education and outreach to maximize the benefits of this underutilized crop.

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