



A survey on knowledge level of common purslane (*Portulaca oleraceae*) in Tamil Nadu by Chi square test

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Abstract

The present investigation was carried out in Tamil Nadu a southern state of India comprised of 38 districts, the survey was conducted to evaluate the knowledge level of consumers about the nutritionally important common purslane crop. Purslane is considered to be a weed in most of the region, but it possesses a high nutraceutical values. It is rich in several nutritionally important phytochemicals and minerals; it is rich in omega-3-fatty acids & omega-6-fatty acids which are helpful in preventing many non-communicable diseases especially cardiovascular diseases. Purslane is an underutilized hidden gem that holds many beneficial properties for humans. The aim of the survey is to oversee the knowledge level of consumers belonging to various age groups, locations and socioeconomic status. A total of 150 respondent were selected for the study randomly through simple random sampling method. Among the respondents, the expected results were fifty per cent of population would have knowledge on purslane, but the results demonstrated that only twenty per cent of the people were known about the crop. The knowledge level of the sample population was estimated through Chi square test, from the Chi square value p value was calculated and found significant so rejected the null hypothesis. From the study, majority of the respondents in the sample had medium level of knowledge followed by low level of knowledge on common purslane. The study recommends nutritionists and horticulturists to utilize the crop for research to provide unswerving information on the cultivation practices of the crop for consumption.

Keywords: *Common purslane, portulaca*, Tamil Nadu, nutraceutical, chi square test

Introduction

Non-communicable (NCDs) diseases like cardiovascular diseases, diabetes, chronic respiratory diseases and cancer used to affect only the old and the wealthy people, but now they are affecting people of all ages and without regard to their socioeconomic status. The industrial revolution is unavoidable in India because it is still under development. People face serious problems because of population growth and industrial globalisation. From our country not everyone is aware or could afford the medication for NCDs. In such situation a cheap and easily available source of nutrition is inevitable in regular diet. Dietary supplements are widely used and offer the potential to improve healthy lifestyle (Rautiainen *et al.*, 2016). Purslane (*Portulaca oleracea* L.) belongs to the family Portulacaceae is most commonly identified as a weed but, it is considered to be an important under-utilized green leafy vegetable in human diet. It provides substantial contributions of minerals, polysaccharides, fatty acids, proteins, alkaloids, terpenoids, sterols, phenols, flavonoids, and vitamins, which together or individually provide neuroprotective, antimicrobial, antidiabetic, antioxidant, anti-inflammatory, antiulcerogenic, anticancer, and anticholinesterase properties. The preference for foods with high nutraceutical value, which provide benefits to human health and contribute to the prevention of diseases, mainly chronic-degenerative diseases, is increasing (Montoya-García *et al.*, 2023). Purslane is a very good source of omega-3 fatty acid; it has been shown to contain five times higher omega-3 fatty

acids than spinach (Uddin *et al.*, 2014) [8]. Levels of triglycerides were substantially lowered by omega-3 fatty acids in some clinical trials (Campbell *et al.*, 2013) [2], three trials reported that omega-3 fatty acids supplementation (1.0–1.8 g) reduced total CVD or coronary events by 8–19% (Gissi, 1999; and Tavazzi *et al.*, 2008) [3]. Type 2 diabetes is accelerated rates of micro- and macrovascular complications, extract of purslane suppresses hyperglycemia and diabetic vascular inflammation, and prevents the development of diabetic endothelial dysfunction for the development of diabetes and its vascular complications (Lee *et al.*, 2011). Purslane is a hidden gem it deserves a special attention from agriculturalists as well as nutritionists (Uddin *et al.*, 2010) [7]. So present investigation was carried out in Tamil Nadu among random people to know the knowledge level of purslane.

Materials and Methods

The current study was conducted during 2021 in Tamil Nadu, which is one of the southernmost states of India. Tamil Nadu is comprised of 38 districts and for the present study people from several age group (above 20) irrespective of their location, socio-economic status and education were selected randomly using simple random sampling method. A sum of 150 respondents were considered from several districts of Tamil Nadu and data were collected through personal interview in an informal way from the respondents. The data were subjected to Chi square test to test the hypothesis with the following formula. Based on that, the

survey was framed out with the null hypothesis of 50% of the sample will have knowledge and 50% of the respondents will not have knowledge on purslane.

$$\text{Formula for Chi square test } \chi^2 = \sum_{i=1}^k \frac{(o_i - e_i)^2}{e_i}$$

Where,

o_i = Observed frequency for the category i

e_i = Expected frequency for the category i

k = Number of categories

Hypothesis,

$H_0 = p_A = .50$ & $p_B = .50$, therefore $H_0: p_A = p_B$

$H_a = p_A \neq .50$ & $p_B \neq .50$, therefore $H_a: p_A \neq p_B$

Where,

H_0 is null hypothesis

H_a is alternative hypothesis.

Results and Discussion

Table 1: Descriptive characteristics of consumers from Tamil Nadu

S. No	Characteristics	Minimum	Maximum	Average
1.	Age	22	60	40.62±9.86
2.	Education	6	12	8.91±1.45
3.	Monthly Income	0.00	50,000	22563.84±5056.97

Data are mean values with standard deviations

Table 2: Expected and observed knowledge level of purslane among the consumers

S. No	Particulars	Knowledge		Unknowledge	
		<i>f</i>	%	<i>f</i>	%
1.	Expected	75	50	75	50
2.	Observed	30	20	120	80
	Chi square value	54			
	<i>p</i> value	2.0049E-13			
	Critical Value	3.84			

f – Frequency; % - Percentage; *n* – Total respondents
p<0.05 indicates significance

The descriptive characteristics of consumers surveyed in the study area are depicted in Table 1. On average, the age of the sampled consumers was 40.62 years indicating ‘elder’ people were largely engaged. Most of the consumers surveyed were educated from ‘secondary’ level to ‘graduate’ level, few were with higher education ‘doctorate’ level and some of the consumers possessed ‘master’s degree’, reflecting that survey involves all people of the society. Generally, sampled respondents had average annual income Rs. 22,563 indicating that most of the consumers were earners with monthly salary above 20,000 rupees. From Table 2 the knowledge level of consumers were expected about 50 per cent of sample would have known the crop and 50 per cent of sample would be unknown about the crop. But the results in the Table 2 demonstrated that respondents with knowledge of crop were about 30 that is about 20% of the total sample population and 120 respondents (80%) were present in the total sampling population without knowledge of purslane crop as a nutritionally values green leafy vegetable. From the Chi

square value *p* value is calculated 2.0049E-13 which is less than *p*<0.05 indicating significance of Chi square value. Therefore, we reject the null hypothesis (H_0) and accept the alternative hypothesis (H_a) that is knowledge level of purslane among the known and unknown consumers are not equal. Among the population of the total respondents had lesser frequency of knowledged respondents were observed and more frequency was observed for unknowledge category.

Table 3: Over all Knowledge level of consumers on Purslane (*Portulaca oleraceae*)

S. No	Overall Knowledge	Frequency	Percentage
1	Low	30	20.00
2	Medium	110	73.33
3	High	10	6.67

n=150

The data in table 3 reported that majority 73.33 per cent of the respondents were found to have a medium level of overall knowledge followed by 20 per cent low level of knowledge and 6.67 per cent of them possess high level of knowledge on common purslane. These finding derive support from Balaji and manjunath (2011) [1].

Conclusion

The study discovered that the majority of consumers does not possess knowledge about the crop. The crop knowledge level is not well established in Tamil Nadu, more researches should be conducted in *Portulaca oleracea* to bring the crop into commercialization. It is a potential green leafy vegetable which is underutilized by the people should be consumed regularly in our diet to lead a healthy lifestyle.

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