The Pharma Innovation Journal 2022; SP-11(1): 1160-1164

www.ThePharmaJournal.com

The Pharma Innovation

ISSN (E): 2277- 7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2022; SP-11(1): 1160-1164

www.thepharmajournal.com
Received: 11-11-2021
Accepted: 15-12-2021

Rashmi Shukla
Sr. Scientist & Head, JNKVV, Jabalpur, Madhya Pradesh, India

Pooja Chaturvedi
Programme Assistant, JNKVV, Jabalpur, Madhya Pradesh, India

Nihirka Shukla
Scientist, JNKVV, Jabalpur, Madhya Pradesh, India

Corresponding Author
Rashmi Shukla
Sr. Scientist & Head, JNKVV, Jabalpur, Madhya Pradesh, India

Role of horticultural crop for secondary agriculture

Rashmi Shukla, Pooja Chaturvedi and Nihirka Shukla

Abstract
The up growing countries women plays important role in supporting to their family economic support, by secondary agriculture special knowledge to the value and diverse use of plants and nutrition, health and income. They have knowledge of value addition and preserving products through horticultural crop.
By food processing through value addition reduction of food losses and adding diversity of diet by giving required vitamins and minerals. They preserved the produce of kitchen gardens and process fruits and vegetables thereby providing energy for body building nutrients. During the season fresh nutritional value yields are available for preserving which are promptly properly preserve to improve the status of living rural food processing low cost gives excellent opportunity. The enhancement of status of backward landless labour class will be using this as an opportunity in getting employment in their house for financial support in his families.
It view of the above technology for in horticultural crop use in secondary agriculture by food processing through value addition in was assessed at KVK Jabalpur for motivation of rural women for self employment and income growth under this they prepared 2-3 times of the initial investment. This will meet their day to day needs/savings.

Keywords: food security, preservation, value addition self employment

Introduction
The up growing countries women plays important role in supporting to their family economic support, by secondary agriculture special knowledge to the value and diverse use of plants and nutrition, health and income. They have knowledge of value addition and preserving products through horticultural crop.
By food processing through value addition reduction of food losses and adding diversity of diet by giving required vitamins and minerals. They preserved the produce of kitchen gardens and process fruits and vegetables thereby providing energy for body building nutrients. During the season fresh nutritional value yields are available for preserving which are promptly properly preserve to improve the status of living rural food processing low cost gives excellent opportunity. The enhancement of status of backward landless labour class will be using this as an opportunity in getting employment in their house for financial support in his families.
It view of the above technology for in horticultural crop use in secondary agriculture by food processing through value addition it was assessed at KVK NARSINGHPUR for motivation of rural women for self employment and income growth under this they prepared 2-3 times of the initial investment. This will meet their day to day needs/savings.
The value-added product is one of the best strategies which farmers can employ to improve net profitability. Value-added products can open new markets, enhance the public's appreciation for the farms produce, and extend the marketability. Keeping all the above issues in mind a study was planned and conducted during to explore the utilization of horticultural crop to enrich the value added products by Krishi Vigyan Kendra, Narsinghpur

Objectives
1. To study the socio-economic and communicational profiles of rural women.
2. To assess the value of horticultural crop through value addition.
3. To determine the extent of income and employment generation

Material and Method
The study was conducted in Rapura village of Jabalpur Distt. (M.P.) Farm women were associated in this trial (30 farm women),by random sampling technique, in the age group of 30 to 50 years with normal health without any major illness were selected for the study. The data was analyzed by using suitable statistical test.

The economic indicators and cost benefit ratio were worked out.

Mango is one of the most important tropical fruits in the world and currently ranked 5th in total world production among the major fruit crops. As mango is a seasonal fruit, about 20% of fruits are processed for products such as puree, nectar, leather, pickles, canned slices, and chutney. These products experience worldwide popularity and have also gained importance in national and international market. (Ravani *et al*. 2013) [2]

Mango (*Mangifera indica* L.) is the king among tropical fruits and is greatly relished for its succulence, exotic flavour and delicious taste in most countries of the world. Apart from its delicacy, it is a nutritionally important fruit being a good source of vitamin A, B and C and minerals. Nutritive value of mango fruits is shown in Table 1. Mango is considered to be a fruit with tremendous potential for future. Worldwide production of mango is 38.95 million tonnes (FAO, 2011) [1]. Mango has its origin in India and approximately a thousand different types of mango fruits are produced in the country. Annual production of mango in India is 15.19 million tonnes (FAO, 2011) [1].

Table 1: Nutritive value of mango per 100g

Protein (g)	0.6 0.7
Fat (g)	0.4 0.1
Minerals(g)	0.4 0.4
Carbohydrates (g)	0.7 1.2
Energy (kcal)	16.9 10.1
Vitamin C (mg)	74 44
Total carotene (mcg)	16 3
Beta carotene (mcg)	2,210 90
Potassium (mg)	1,990
Sodium (mg)	205.83
Calcium (mg)	26.43
Iron (mg)	14.10
Phosphorous (mg)	1.3 0.33 Source: Nigam *et al*., 2007)

Large Participants were farm women from Rapura village of Jabalpur Distt. (M.P.). Who were actively associated in this trial? They were provided with 5 Kg. each raw material ie. Frash mangoes. They were explained the method of processing accordingly they processed the raw material and the product was prepared (Amchor Powder)

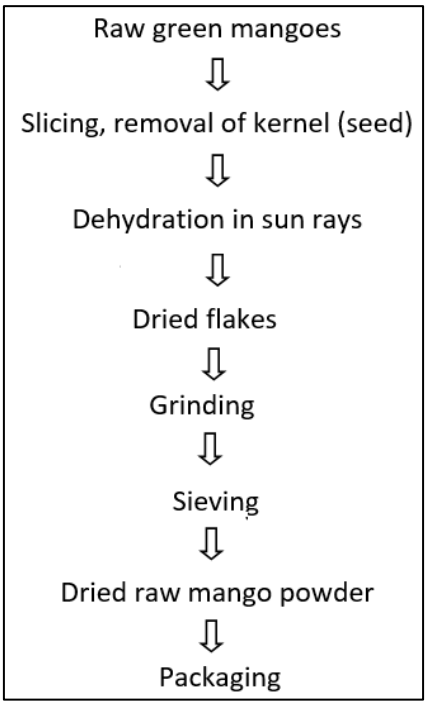

Fig 1: Flow chart for the preparation of Amchur powder

Table 2: Total Processing Cost of Amchor Powder

Details	No. of trials	Yield per Unit	Cost of produce (Rs/unit)	Incremental Income (Rs/unit)	Net return (Rs/unit)	Savings in Rs.	B: C Ratio
(Farmers Practice) T1 (No value addition)	05	-	-	-	-	-	**1: 1.6**
(Recommended practice) T2		-	Rs.50/Kg	Rs -130./Kg	Rs.80/Kg	Rs.- 30/-	

Net Return - Cost of cultivation= B.C -Ratio

Cost of Produce – Selling Price = Net Profit BCR = Benefit cost ratio GR = Gross return and TC = Total cost

Fig 2: Processing Cost cum Profit of Amchor Powder (Rs./kg)

Farm women by selling the produce in market (Amchor Powder) received profit Rs. 80.00/Kg. resulting into increase their family income with indicated increased family income of farm women through food processing, preservation and marketing.

Result and Discussion

Mango is one of the most popular and highly prized desert fruit. It is liked by the people for its rich luscious aromatic flavor and a delicious taste with evenly blended sweetness and acidity. Nutritionally, it is a rich source of carotenoids, organic acids, polyphenols, mineral etc. India produces 13.5 million tones of mangoes were produced during the period 2006-2007. India exports two thirds of the total processed mangos (20000 MT) and its main destinations are USA and UK. In India both raw and ripe mangoes are used for making various product like pickle, mango, bar, canned mango slices, canned mango pulp, nectar squashes, ready-to-serve beverage, juice, jam, osmotically dehydrated mango etc. (Ramteke *et al*., 1999). However the major product processed for export is canned mango pulp followed by mango chutney and canned slices in brine. Although the export trade on mango products worldwide is meager compared to orange, pineapple etc, the research efforts on extension of shelf life and value addition to mango as well as improvement in quality are continued. Effect of various coating materials and formulations on the shelf life of mangoes during storage has been evaluated (Thittoa *et al*., 2002; Nuzab *et al*., 2005). Martinez-Ferrer *et al*. (2002) conducted studies on modified atmosphere packaging of minimally processed mango and reported that the shelf life could be extended upto 25 days at 5 ^{0}C with good colour, flavour, aroma and texture. Effect of different hydrocolloids on the quality of mango product has been investigated by Gujral and Brar (2003). Jaya and Das (2004) reported the effect of malt dextrin, glycerol mono stearate and tricalcium phosphate on vacuum dried mango powder. Quality attributes of mango soy fortified yoghurt with added stabilizer has been discussed by Pradyuman and Mishra (2004). In spite of so many products from mango available commercially the scope for development of value added products in quite open considering the enormous production of different varieties of mango in India.

Dehydration of raw mangoes is carried out in Indian households or at cottage scale and in some traditional practices by mixing with salt and turmeric. The dehydrated mango powder is known as amchur and is categorized under spices for various reasons such as its applications in spice mixes for various snack/chat foods and is generally used as an acidulant in place of tamarind in the northern Indian states. Raw mangoes are also used in the preparation of traditional beverages with a cooling effect known as panna in the hot summer months. Chutneys and dhal preparations are generally made by using raw mangoes at household level though such preparations are not shelf-stable and are consumed as and when they are prepared in a day or two. They are highly susceptible to mold growth as they are intermediate moisture foods and cannot be stored without refrigeration.

It view of the above technology for value addition in mango powder was assessed at KVK JABALPUR for motivation of for women for self employment and income growth under this they prepared 2-3 times of the initial investment. This will meet their day to day needs/savings.

Food processing and preservation can be a good source of income for small community based producer groups as well as for small to medium enterprises (in particular farm women ie. Through self help group).

Potato Chips

Potato is the most important tuber crop of the world and most important vegetable food crop in India which occupies the third place in the global production.

Potatoes (*Solanum tuberosum* L.) are one of the most important staple crops for human consumption, together with wheat, rice and. corn. About 328.87 million tonnes of potato are produced in the world over an area of about 19.13 million hectare. In India area under production is 1930.91 ha with a production of 42478.65 tonnes and yield of potatoes is 22.7 kg per ha as per Govt. of India6. In Punjab area under production is 85.14 ha with a production of 2129.79 tonnes and yield of potato is 25.01 kg per ha as per Govt. of Punjab7. This record production has led to several post harvest problems, storage being the major one. Increasing potato production with inadequate, expensive and unevenly distributed refrigerated storage facilities in the country has resulted in frequent gluts in the market causing economic loss to the farmers and wastage of precious foods. The processing of potatoes would contribute to reduction of post harvest losses and pressure on cold storage8. Presently, the global potato sector is undergoing major changes. Currently, more quantities of potatoes are currently processed into value-added products to meet the demand especially of the fast food and convenience food industries. Under the existing circumstances, processing

Popularization of the potato products among self help groups

The self help group's members of different villages of Punjab like Ayali Kalan, Bains, Lohara, Moga and from local areas of Ludhiana city were participated. Highly acceptable products were popularized among the self help groups by giving them lectures, demonstrations and booklet on potato based recipes for nutritional and health benefits of children. (Kaur, Amardeep and Kochhar, Anita (2014) [3].

Introduction: Potato is the main vegetable crop which grown across the country. The state of Madhya Pradesh has substantial area under this crop. Bundelkhand region of the state is well known for cultivation of potato. It is also grown in a significant area in Jabalpur district; however, many times farmers get very little benefit due to its fewer prices. Potato has ample possibilities of its value addition; farmers can get higher benefit from the value added products prepared by potato.

The value-added product is like potato chips are one of the best strategies which farmers can employ to improve net profitability, get extra income for their family. Value-added products can provide new markets, enhance the public's appreciation for the farms produce, and extend the marketability. Keeping all the above issues in mind a study was planned and conducted during 2016-17 to explore the utilization of potato to enrich the value-added product in the form of chips by Krishi Vigyan Kendra, Jabalpur.

Table 3: Economics of value-added products:

Details	No. of trials	Yield per Unit	Cost of produce (Rs/unit)	Incremental Income (Rs/unit)	Net return (Rs/unit)	Savings in Rs.	B: C Ratio
(Farmers Practice) T1 (No value addition)	05	-	-	-	-	-	1: 5.8
(Recommended practice) T2		-	Rs.730/(50)Kg	Rs. 5000/50 kg	Rs.4270/Kg	Rs- 3540/-	

Net Return - Cost of cultivation= B.C -Ratio
Cost of Produce – Selling Price = Net Profit
BCR = Benefit cost ratio GR = Gross return and TC = Total cost

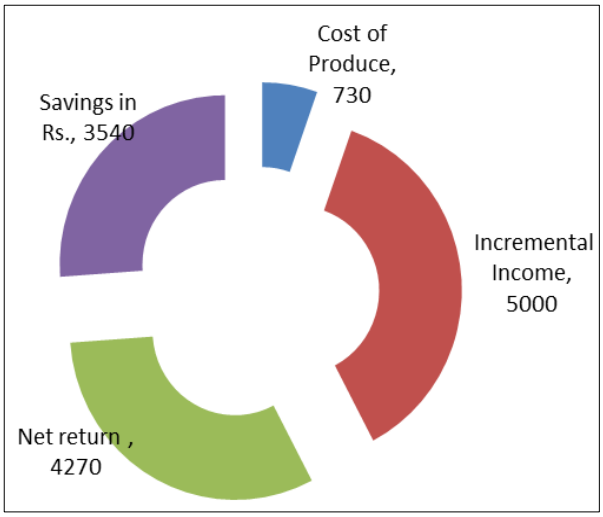

Fig 3: Economics of Value added products of Potato (Potato chips) (Rs./50 kg)

Conclusion: Technology to formulate the potato chips was disseminated through FLDs and trainings. A positive impact by direct and indirect effects by uplifting the farm families' income level.

Guava Gam

The guava fruit is a good source of vitamin C, pectin, calcium and phosphorus. The fruit is used for the preparation of processed products like jams, jellies and nectar. Guava jelly puree is very popular for its attractive purplish-red colour, pleasant taste and aroma. The puree can be used in juice, cakes, puddings, sauces, ice-cream, jam and jelly. Fruits can be preserved by canning as halves or quarters, with or without seed core (shells). Good quality salad can be prepared from the shell of ripe fruits.

Leaves of guava are used for curing diarrhoea and also for dyeing and tanning.

Guava (*Psidium guajava* L.) is one of the hardy fruit crops being cultivated throughout India. It is native of tropical America and is widely distributed throughout the tropical and sub tropical regions of the world. Guava is fourth most important fruit in area and production after mango, banana and citrus in India. Guava shares 3.3 per cent of area and 3.3 per cent of production of total fruit crop grown all over India. Guava is 5th in productivity among different fruit crops grown in India. It is being cultivated in India on 2.04 lakh hectares area with an annual production of 22.70 lakh tonnes (Salaria and Salaria, 2013) [4]. Allahabad Safeda, Sardar (Lucknow-49) and red fleshed are the important grown varieties of guava. Guava is considered as "common man's apple" and 'the apple of tropics' because of its availability for a longer time during the year at very moderate price. (D. Anandhanambi *et al.* 2016) [7].

Table 4: Shows in table details and yield per unit cost of input.

Details	No. of trials	Yield per Unit	Cost of Input (Rs/unit)	Incremental Income (Rs/unit)	Net return (Rs/unit)	Savings in Rs.	B: C Ratio
(Farmers Practice) T1 (No value addition)	05	-	-	-	-	-	1:3.2
(Recommended practice) T2		-	Rs.65/Kg	Rs.250/Kg	Rs.190/Kg	Rs.130/Kg	

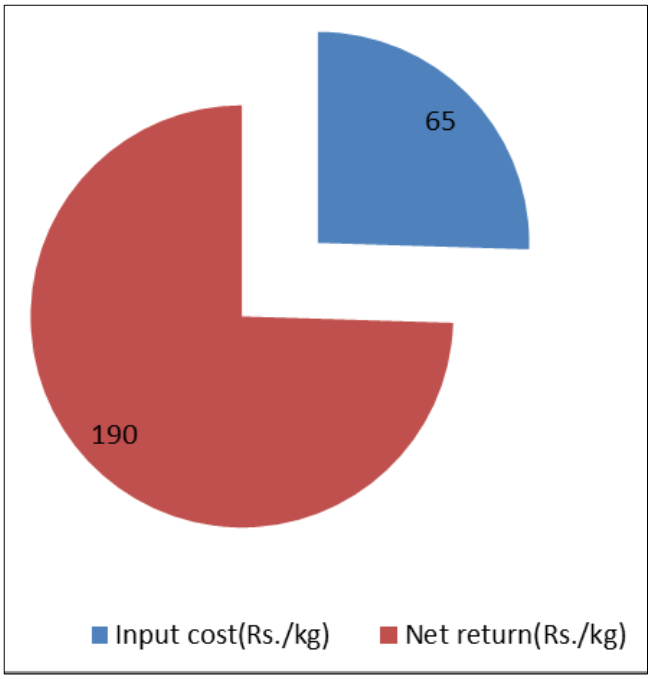

Fig 4: Economics of value added products of Guava (Guava Jam) Rs./kg

Conclusion

The international market is becoming more competitive and other mango producing countries are also entering the market. The industry has therefore, to look forward to the development of newer categories of products, so as to retain the monopoly for processed mango products in the international market. These by products can be converted to value added products to generate more revenue and to reduce environmental pollution.

Recommendations

From the results of the present study, it was observed that the improved tool manufactured by CIAE, Bhopal (helped in reducing the physiological parameters and also increased the production output to a great extent. Muscular stresses were also reduced with the improved tools grain cleaner manufactured by CIAE, Bhopal. It is therefore recommended that the women should be motivated to use improved tool to prevent occupational health hazards and to achieve higher work productivity.

References

1. FAO. Mango – Post Harvest Operations, INPHO post harvest compendium, Food and Agricultural Organizations of United States, 2002, 54-55.
2. Amee Ravani, Joshi DC. Mango and its by product utilization: A review. Trends in Post Harvest Technology. 2013; October-December 1(1):55-67. ©2013 Jakraya Publications (P) Ltd
3. Kaur Amardeep, Kochhar Anita. Sensory and nutritional evaluation of value added products using potato flour for nutritional and health benefits. Internat. J Med. Sci. 2014;7(1-2):1-6.
4. Mann S, Gupta D, Gupta V, Gupta R. Evaluation of Nutritional, Phytochemical, and Antioxidant Potential of *Trapa bispinosa* Roxb. Fruit. Retrieved November 2011, November 27, 2017, from http://www.ijppsjournal.com/Vol4Issue1/3050.pdf
5. Salaria A, Salaria BS. Facts and figure of Indian horticulture. In: Fruit and plantation crops, 2013, I.
6. Adkar P, Dongare A, Ambavade S, Bhaskar VH. *Trapa bispinosa* Roxb.: A Review on Nutritional and Pharmacological Aspects. Retrieved November 17, 2014, February 10 2017, from https://www.hindawi.com/journals/aps/2014/959830/
7. Anandhanambi D, Arivazhagan E, Kandasamy R. Influence of plant growth regulators and Azospirillum on rooting of air layers in guava (*Psidium guajava* L.). Asian J. Hort. 2016;11(2):261-268. Doi: 10.15740/HAS/TAJH/11.2/261-268.