



Nutritional composition, bioactive compounds and antioxidant capacity of wild melon chunks as affected by different drying methods and storage

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ABSTRACT

Underutilised plants contribute significantly to food security and function as a means of existence. Wild melon commonly called kachri/chibbad is a member of the Cucurbitaceae family. The experiment was conducted during 2021–22 at College of Community Science, Punjab Agricultural University, Ludhiana, Punjab to evaluate the effect of different drying methods and storage conditions on biochemical parameters of wild melon chunks. The results showed that flavonoids (223.61 mg QE/100 g), alkaloids (51.53 mg/100 g) and antioxidant activity (DPPH- 66.19% and ABTS- 64.40%) in shade dried chunks were significantly ($P \leq 0.05$) higher than the oven dried chunks. Although the total phenols (451.34 mg GAE/100 g) and ascorbic acid (77.75 mg/100 g) content of shade dried chunks was higher than the oven dried, but there was no significant difference seen. There was significant ($P \leq 0.05$) decrease in the total phenols, flavonoids and antioxidant activity upon storage (3 months) and per cent retention of corresponding parameters was higher in shade dried as compared to oven dried chunks. In conclusion, wild melon may be a useful tool for promoting health, because it is a good source of phytonutrients and also drying could be a sustainable solution to reduce post-harvest losses and promote the utilization of wild melon as a functional food ingredient.

Keywords: Antioxidants, Bioactive compounds, Dried chunks, Wild melon

About 40–100,000 species of plant have been used for food, fibres, industrial, cultural and medicinal purposes in human history. But now, only a limited number of species are commonly used (Magbagbeola *et al.* 2010). Plants that are underutilised contribute significantly to food security and function as a means of existence (Assefa and Abebe 2011). Furthermore, underutilised fruits from hot desert regions can serve as a safety net in underprivileged communities, supplementing food security and nutrition, and income generation while also providing environmental benefits.

The Cucurbitaceae family includes wild melon, often known as small gourd, kachari (Hindi and Gujarati), chibdin (Konkani), chibbad (Punjabi), shonda (Marathi) and gurmi (Nepalese) (Dahot *et al.* 1999). In India, the wild melon can be seen growing along the edges of railway lines and roads, along rivers, in farming fields, and on wastelands, encompassing the southern states, Punjab, Haryana, Himachal Pradesh, Rajasthan, and Kerala (Stepansky *et al.* 1999). In 2007, 1277 ha of the entire hot, dry region of Rajasthan were planted with the improved variety AHK-119 of kachri; by 2017, that number had grown to 3865 ha. In the entire hot, arid region of Rajasthan, the enhanced

kachri variety (AHK-119) generated a gross return of 17.50 crores in 2007 and 52.97 crores in 2017 (Samadia *et al.* 2024). *Cucumis melo* var. *Agrestis* is a monoecious plants having thin stems, small seeds and a paper-thin mesocarp. It is an annual climber that can reach a height of 1.5 m (Rana 2017). Flower clusters are held on a densely hairy 5–10 mm long stalk (Rana 2017). The fruit, which resembles a small watermelon, is ellipsoid, oval-round, smooth and hairless and 4×2.5 cm in diameter, with dark green stripes (Rana 2017).

Cucumis melo var. *Agrestis* have many phytoconstituents such as alkaloids, tannins, flavonoids, carbohydrates, proteins, glycosides, steroids, triterpenoids and phenolic acids which are responsible for therapeutic potential (Kapoor *et al.* 2020). Antioxidants make up the bulk of phytochemicals and are responsible for pain reduction and stimulation (Meena *et al.* 2016). Wild melon is considered to possess significant antioxidant, anti-inflammatory and analgesic value. The fruits of the wild melon were used as a stomachic, while the flowers were used as an expectorant and emetic (Meena *et al.* 2016). Kachri is only available for a limited time. During this brief period, only a small portion of overall produce is profitably utilised, the rest of the product spoils owing to over ripening or a lack of understanding of alternative processing processes. Kachri has post-harvest losses that range from 30–40% and lower

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the market value of the fruits. The kachri can be dried, which can help prevent post-harvest losses, give growers good profits, and make the fruit available during off-season (Nathawat *et al.* 2013). The present study focuses on the effect of different drying treatments and storage conditions on total phenolic, flavonoids and antioxidant capacity of wild melon chunks.

MATERIALS AND METHODS

Sample preparation: The experiment was conducted during 2021–22 at College of Community Science, Punjab Agricultural University, Ludhiana, Punjab. Physiologically mature, but unripe wild melon fruits were harvested from Bathinda district of Punjab. Wild melons were properly cleaned with tap water, sliced into thin slices (approximately 4 mm), and then subjected to oven ($50^{\circ}\text{C} \pm 5$, Shivam Instruments, New Delhi) and shade drying. Fresh wild melons (harvested after 90 days of sowing) were separated into two groups of 500 g each, sliced (approximately 4 mm thick which includes peel, pulp and seeds i.e. whole fruit), and dried (in each case, in a single layer) using two different techniques until the moisture content was constant and constant weight was obtained. Group 1 was dried in conventional oven at 50°C and group 2 was dried in shade at $30\text{--}32^{\circ}\text{C}$. The dried chunks were kept in air-tight polybags and stored in refrigerator at 4°C for three months.

Proximate composition: The moisture, crude protein, crude fat, crude fibre, ash and available carbohydrates were analysed using AOAC (2010) standard methods. Moisture content was estimated using 5 g of sample being constant heated at 105°C until constant weight was obtained. Crude protein was estimated using Kjeldhal method ($\% \text{ nitrogen} \times 6.25$). Soxhlet apparatus with 5 g sample and petroleum ether as extraction solvent was used for fat determination. For crude fibre, 2 g of fat free sample was digested with H_2SO_4 and NaOH, the remaining sample was burned in muffle furnace for 5 hrs at 550°C . Ash content was determined using muffle furnace (550°C for 5 hrs). Carbohydrate content was estimated using the following formula-

$$\text{Total Carbohydrates} = 100 - (\text{Moisture} + \text{Crude protein} + \text{Crude fat} + \text{Crude fibre} + \text{Ash})$$

Mineral contents such as calcium, iron, zinc and phosphorus were assessed using ICP (Thermo, X series 2) method.

Bioactive compounds and antioxidant activity: One g of sample was crushed and extracted with 20 ml of 80% methanol by shaking for three hours. The extract was centrifuged for 5 min @10000 rpm. Whatman No. 1 filter paper was used to filter the supernatant. With 80% methanol, the volume was made up to 50 ml. Until analysis, the methanolic extract was kept at -20°C . Flavonoids, total phenols, and antioxidant activity was measured using the methanolic extract.

The total phenolic activity was analysed using procedure described by Singleton *et al.* (1999), in a test tube 0.5 ml of methanolic extract was taken and volume made to 1 ml

with 0.5 ml of 80% methanol. Followed by 5 ml folin phenol reagent, after 5 min, 4 ml of saturated sodium carbonate solution was added. For 2 hrs, mixture was incubated at room temperature in a dark room and developed blue colour was observed at 765 nm against a blank. Flavonoid content was analysed using procedure described by Zhishen *et al.* (1999), where, 2 ml of methanolic extract was taken in a test tube and 0.1 ml of 10% AlCl_3 was added. It was then followed by 0.1 ml of 1M potassium acetate and 2.8 ml of distilled water. After that, mixture was incubated for 30 min and absorbance was measured at 415 nm against blank. Alkaloid content was calculated using procedure described by Shamsa *et al.* (2008). 5 g of the grounded material was extracted with methanol for 24 hrs, then filtered and concentrated at 450°C in a rotary evaporator. After dissolving the residue in 2N HCl and filtering it, it was rinsed three times with 10 ml of chloroform. 0.1N NaOH was used to neutralise the solution. The mixture was stirred vigorously after 5 ml of phosphate buffer and 5 ml of bromocresol green solution were added. The resulting complex was extracted using 1, 2, 3 and 4 ml of chloroform, mixed in a 10 ml flask, and then diluted with chloroform to volume. At 470 nm, absorbance was measured. The AOAC (2010) method was used to analyse the ascorbic acid content of wild melon chunks. In a pestle and mortar, 5 g of sample was taken and to it, 20 ml of 6% metaphosphoric acid was added to make slurry. It was then filtered using Whatman No. 1 filter paper. Residue was again filtered using 30 ml metaphosphoric acid. Further, three separating funnels of 50 ml each were taken and labelled A, B and C for sample, dye blank and standard, respectively. Five ml of filtrate was added to funnel A, and 0.1 ml of standard ascorbic acid was added in funnel C. Five ml of acetate buffer, two ml of dye solution, and 10 ml of xylene were added to each funnel. The layers were allowed to separate after shaking for 5–10 seconds. After moving the xylene layer to a test tube, the optical density at 500 nm was determined.

The antioxidant activity was assessed using two methods, DPPH and ABTS assay. DPPH antioxidant activity was determined by using Brand-Williams *et al.* (1995) method and ABTS was determined using Re *et al.* (1999) method. For DPPH method, 0.1 ml of methanolic extract was taken in a test tube and to that, 2.9 ml of DPPH solution was added. The mixture was incubated in the dark for 30 min. The discoloration of DPPH was measured at 517 nm against a blank. For ABTS method, in order to make a total volume of 1 ml, 0.1 of an aliquot was added to the test tube, followed by 0.9 ml of ethanol. For the blank, 3 ml of the ABTS working reagent were introduced to this test tube and vortexed. The test tubes with the sample and the control were incubated at 37°C for 10 min. After 10 min of incubation, the absorbance at 734 nm was measured against ethanol. The following formula was used to calculate the DPPH scavenging effect and ABTS assay:

$$\% \text{ inhibition} = \frac{(\text{AB} - \text{AA})}{\text{AB}} \times 100$$

Where, AB, Absorbance of blank; AA, Absorbance of sample.

The percentage retention in antioxidant activity, total phenolic content, flavonoids was calculated using values obtained at day 0 and after each month in three months storage period.

Total sugars and dietary fibre: The total sugars and starch in chunks (which includes whole fruit i.e. peel, pulp and seeds) were determined using method given by Dubois *et al.* (1956) and reducing sugars were determined using method given by Somogyi (1952). The dietary fibre content including total dietary fibre, soluble dietary fibre and insoluble dietary fibre was calculated using AOAC (1992) 991.43 methods.

Statistical analysis: The Statistical Package for the Social Sciences (SPSS, [PASW version 18.0] Inc., USA) was used to do an analysis of variance. Results were presented as the mean of three distinct observations and the standard deviation was used to quantify treatment differences using Tukey's test ($P < 0.05$).

RESULTS AND DISCUSSION

The proximate composition, mineral content, sugars and dietary fibre content of wild melon after oven drying and shade drying is given in Table 1. The proximate composition of oven and shade dried materials differed significantly ($P < 0.05$). Compared to those dried in the oven, shade dried wild melon chunks had a higher proportion of crude fibre. This difference might because of loss of organic matter and also prolonged duration of time that carbohydrates and amino acids were allowed to complex at room temperature which resulted in non-enzymatic browning effect in case of oven dried (Komonsing *et al.* 2022). Kapoor *et al.* (2020) reported moisture content of premature fruit (86%), protein (15%), fat (13%), crude fibre (24%), total ash (11%) and total available carbohydrates (37%). The fact that a large amount of kachri is in the form of seeds and that cucurbit seeds are well known to be high in protein and that may be the cause of the high protein content of kachri (Gadekar *et al.* 2023). According to Vijayvergia (1999), dehydrated fruits of wild melon include 16.7% crude protein, 24.4% crude fibre, 22.2% carbohydrates, and 0.6% phosphorus. According to Badmus *et al.* (2019), different drying techniques have a deleterious impact on nutritious components. It is a fact that during heat processing and storage, accessible reducing sugars and amino acids interact to naturally cause the Maillard reaction (non-enzymatic browning) in food.

The mineral content of oven dried chunks was slightly higher than shade dried chunks. However, there was no significant difference ($P < 0.05$) seen the mineral content of oven and shade dried wild melon chunks. The results were in line with the results reported by Kapoor *et al.* (2020) as the calcium, phosphorus, zinc, iron and manganese in kachri were 312, 160, 17.6, 14.3 and 2 mg/100 g, respectively.

The total sugars, reducing sugars, non-reducing sugars and starch of oven and shade dried wild melon chunks differed significantly ($P < 0.05$) with shade dried having

Table 1 Proximate composition, mineral content, sugars and dietary fibre content of wild melon chunks (oven and shade dried)

Parameter	Oven dried	Shade dried	t-value
Moisture (%)	5.40 ± 0.49	6.19 ± 0.20	2.593*
Crude protein (%)	14.79 ± 0.60	13.63 ± 0.72	3.035*
Crude fat (%)	14.71 ± 0.02	12.13 ± 0.09	10.476***
Crude fibre (%)	3.04 ± 0.11	4.50 ± 0.03	22.179***
Total ash (%)	3.36 ± 0.04	3.20 ± 0.02	7.525**
Available Carbohydrates (%) (by difference)	58.75 ± 0.34	60.45 ± 1.00	3.708*
Calcium (mg/100g)	295.67 ± 6.03	294.70 ± 3.72	0.236 ^{NS}
Iron (mg/100g)	11.57 ± 1.16	11.30 ± 0.61	0.360 ^{NS}
Zinc (mg/100g)	3.47 ± 0.25	3.23 ± 0.11	1.544 ^{NS}
Phosphorus (mg/100g)	180.15 ± 4.61	180.27 ± 4.21	0.033 ^{NS}
Total sugars (%)	9.66 ± 0.06	9.79 ± 0.09	2.156*
Reducing sugars (%)	3.35 ± 0.16	2.59 ± 0.54	2.366*
Non-reducing sugars (%)	5.99 ± 0.10	6.84 ± 0.58	2.472*
Sucrose (%)	0.11 ± 0.01	0.11 ± 0.02	2.109 ^{NS}
Starch (%)	6.18 ± 0.15	6.69 ± 0.28	2.749*
Total dietary fibre (%)	18.09 ± 0.18	16.20 ± 0.22	11.516***
Soluble dietary fibre (%)	15.05 ± 0.29	11.70 ± 0.25	15.154***
Insoluble dietary fibre (%)	3.04 ± 0.11	4.50 ± 0.03	22.179***

Values represents mean (n = 3) ± SD

Values in columns followed by different superscripts differ significantly ($P \leq 0.05$).

*, significant @5%; **, significant @1%; ***, significant @0.1%.

better sugar composition. Suna *et al.* (2014) reported that the total sugar and reducing sugar content of apricot pestil in sun dried form (58.83 and 26.14 g/100 g) was higher as compared to the microwave oven dried pestil (51.32 and 24.00 g/100 g) but lower than vacuum oven dried pestil (61.40 g/100 g and 27.35 g/100 g dry weight basis).

The amount of total dietary fibre in oven dried wild melon and shade dried chunks were 18.09% and 16.20%, respectively, whereas the amount of soluble dietary fibre in oven and shade dried wild melon chunks was 15.05% and 11.70%, respectively, furthermore the amount of insoluble dietary fibre in oven and shade dried wild melon chunks was 3.04 (g/100 g) and 4.50 (g/100 g), respectively. There was a significant difference ($P < 0.05$) in the dietary fibre content of oven and shade dried wild melon chunks. By eliminating possible carcinogens from the body, fibre has been shown to purify the digestive tract and so stop the body from absorbing too much cholesterol. Additionally, fibre gives meals more volume and lowers the consumption of excessive starchy foods, which are common in the diets of the underprivileged and locals. This helps prevent metabolic

diseases like diabetes mellitus and hypertension (Adeyemi *et al.* 2014). Alakali *et al.* (2015) showed the crude fibre content of shade dried (16.33%) *Moringa oleifera* leaves was lower as compared to the oven dried @50°C (17.40%) leaves and it kept on increasing with increase in the drying temperatures i.e. @60°C (17.61%) and @70°C (17.66%).

The bioactive compounds including phenols, flavonoids and alkaloids, ascorbic acid and antioxidant activity using DPPH and ABTS method have been given in Table 2. Antioxidant activity in bioactive compounds including total phenols, flavonoids, alkaloids and ascorbic acid content of shade dried wild melon chunks was significantly higher than oven dried wild melon. Except total phenols and alkaloids, all the other parameters differed significantly ($P < 0.05$).

The antioxidant activity (DPPH method) of shade dried chunks was more as compared to oven dried chunks. Similar trend was found in antioxidant activity by ABTS method where percentages were 62.19% and 64.40% respectively.

Mansour (2016) showed that the total phenolic content of air shade (240.11 mg GAE/100 g) was higher than the sun drying (231.21 mg GAE/100 mg) and oven drying (200.10 mg GAE/100 g). Enzymatic activities may be the reason of TPC loss following air drying. Since damaged enzymes like polyphenol oxidases are still active after air drying, they can still break down phenolic compounds before the plant materials are totally dry. Polyphenol oxidases found in herb materials have been demonstrated to be quickly inactivated by oven drying at 40°C, although some of their initial activities may have taken place earlier and destroyed some polyphenols.

Furthermore, the flavonoid content also decreased

Table 2 Antioxidant activity, bioactive compounds and ascorbic acid of wild melon chunks (oven and shade dried)

Parameter	Oven dried	Shade dried	t-value
Antioxidant activity (%) (DPPH)	64.27 ± 0.30	66.19 ± 0.48	5.937**
Antioxidant activity (%) (ABTS)	62.19 ± 1.04	64.40 ± 1.13	2.492*
Total phenols (mg GAE/100 g)	432.29 ± 16.44	451.34 ± 11.05	1.665 ^{NS}
Flavonoids (mg QE/100 g)	189.52 ± 1.16	223.61 ± 0.51	46.765***
Alkaloids (mg/100 g)	49.09 ± 1.89	51.53 ± 4.95	38.707 ^{NS}
Ascorbic acid (mg/100 g)	64.79 ± 0.37	77.75 ± 0.45	0.799***

Values represents mean (n=3) ± SD

Values in columns followed by different superscripts differ significantly ($P \leq 0.05$). ^{NS}, Non-significant; *, significant @5%; **, Significant @1%; ***, Significant @0.1%.

after the oven drying process, the amount of flavonoids decreased to 114.31–176.32 mg QE/100 g, whereas after shade drying, it increased to 184.12–195.21 mg QE/100 g. It was discovered that oven drying lost more flavonoids than air or sun drying. Temperature may be the cause of these losses. Some phytochemicals that alter the integrity of cell walls and cause some flavonoids to migrate that may be broken down by heating. Additionally, the breakdown or leakage of flavonoids is due to chemical interactions involving oxygen, enzymes, and light.

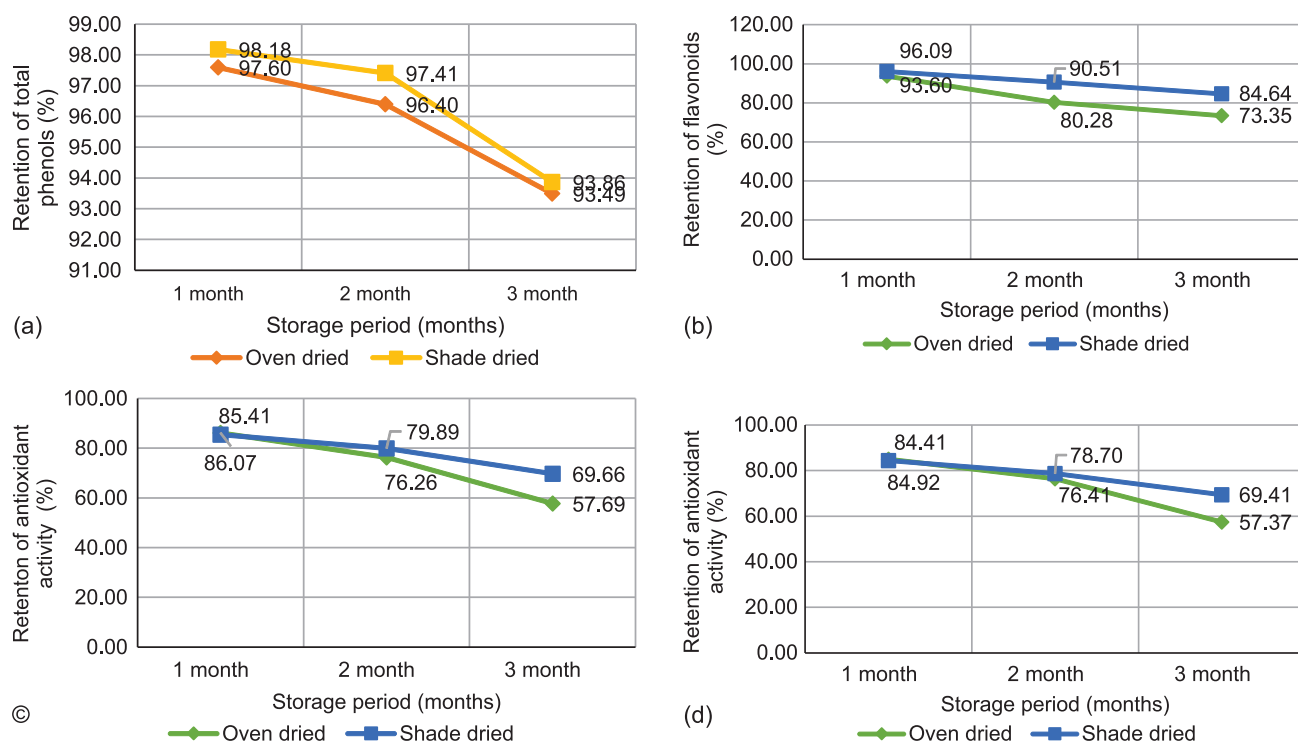


Fig. 1 Effect of storage on (a) phenolic content of wild melon chunks; (b) flavonoid content of wild melon chunks (c) antioxidant activity (DPPH) of wild melon powder (d) antioxidant activity (ABTS) of wild melon powder (oven and shade dried).

The study conducted by Alakali *et al.* (2015) showed that the amount of vitamin C in shade-dried leaves in comparison to oven dried leaves at 40°C dropped a little bit from 27.72–27.52 mg/100 g. The decreased vitamin C concentration in leaves could be brought on by the high temperature used for drying that can lead to significant vitamin C deficits.

As shown in Table 3, there is a substantial positive association between TPC (total phenolic content), TFC (total flavonoid content) ($r^2 = 0.609$), and DPPH (a measure of antioxidant activity) ($r^2 = 0.627$). Additionally, TFC exhibits a strong positive connection with both ABTS ($r^2 = 0.766$) and DPPH ($r^2 = 0.947$). TFC ($r^2 = 0.994$) and DPPH ($r^2 = 0.933$) are strongly positively correlated with CFIB (crude fibre). There is a significant positive association between ash and both CFIB ($r^2 = 0.923$) and CF (crude fibre) ($r^2 = 0.877$). TFC ($r^2 = -0.998$) and DPPH ($r^2 = -0.950$) have a substantial negative connection with AA (ascorbic acid), meaning that when TFC and DPPH levels rise, AA levels fall. Total dietary fibre (TDF) has a strong negative connection with both TFC ($r^2 = -0.982$) and DPPH ($r^2 = -0.932$), indicating that lower levels of flavonoids and antioxidants are linked to increased fibre content. Overall, greater dietary fibre content often correlates with lower levels of phenolic and flavonoid chemicals, whereas greater levels of these compounds generally correspond with increased antioxidant activity.

Fig. 1 shows the effect of storage on phenolic, flavonoid and antioxidant activity (DDPH and ABTS) of wild melon chunks (oven and shade dried). As of phenols, no significant change was found in oven dried, but significant decrease was found in shade dried after two months of storage. The per cent retention of total phenols and flavonoids in case of oven dried was greater than shade dried.

Antioxidant activity (DPPH and ABTS method) decreased significantly in oven and shade dried powders during storage of three months. The per cent retention in case of oven dried was greater than that of shade dried.

Similarly, Wani *et al.* (2018) found that the total phenolic content of apricot fruit significantly decreased over the course of storage. Kim *et al.* (2018) also reported that the total phenols and antioxidant activity in case of hardy kiwifruit, gradually decreased with storage time and with rising storage temperature, phenolic breakdown and antioxidant activity occurred more quickly. According to several studies, thermal factors can cause products to lose bioactive elements like anthocyanins, vitamin C, carotenoids, lycopene, and phenolics. Hegde (2020) also reported that total phenolic, flavonoids, ascorbic acid and antioxidant activity of karonda powder decreased after six month storage.

Value addition of wild melon fruits can improve the socioeconomic standing of those who live in arid zones. The results showed that the bioactive compounds and antioxidant potential of shade dried chunks was better than oven dried chunks. However, the total dietary fibre and soluble dietary fibre content was higher in case of oven dried chunks. Among

Table 3 Correlation between nutritional parameters and bioactive compounds

	TPC	TFC	DPPH	ABTS	AA	ALK	TS	TDF	Ca	Fe	Zn	K	MOI	CP	CF	CFIB	Ash
TPC	1.000																
TFC	0.609	1.000															
DPPH	0.627	0.947*	1.000														
ABTS	0.845*	0.766	0.746	1.000													
AA	-0.637	-0.998*	-0.950*	-0.780	1.000												
ALK	0.409	0.365	0.642	0.376	-0.386	1.000											
TS	0.448	0.727	0.512	0.418	-0.718	-0.261	1.000										
TDF	-0.704	-0.982	-0.932*	-0.873*	0.984*	-0.375	-0.679	1.000									
Ca	0.223	-0.141	-0.358	-0.045	0.143	-0.711	0.512	0.112	1.000								
Fe	0.472	-0.214	-0.198	-0.056	0.185	-0.038	0.148	0.185	0.644	1.000							
Zn	0.070	-0.637	-0.697	-0.145	0.629	-0.499	-0.234	0.519	0.679	0.561	1.000						
K	0.610	-0.005	0.081	0.546	-0.041	0.356	-0.290	-0.146	-0.074	0.301	0.334	1.000					
MOI	0.423	0.804	0.783	0.668	-0.821*	0.430	0.373	-0.797	-0.453	-0.395	-0.713	0.281	1.000				
CP	-0.130	-0.854*	-0.723	-0.420	0.833*	-0.044	-0.718	0.774	0.173	0.527	0.758	0.409	-0.709	1.000			
CF	-0.639	-0.983*	-0.903*	-0.823*	0.986*	-0.301	-0.717	0.985*	0.109	0.223	0.572	-0.114	-0.857*	0.830*	1.000		
CFIB	0.678	0.994*	0.933*	0.823*	-0.996*	0.351	0.728	-0.994*	-0.093	-0.163	-0.564	0.089	0.810	-0.810*	-0.992*	1.000	
Ash	-0.473	-0.973*	-0.963*	-0.654	0.965*	-0.456	-0.637	0.929*	0.294	0.322	0.761	0.144	-0.767	0.877*	0.923*	-0.943*	1.000

* , Significant @5%; TPC, Total Phenol content; TFC, Total flavonoid content; AA, Ascorbic acid; ALK, Alkaloids; TS, Total sugars; TDF, Total dietary fibre; Ca, Calcium; Fe, Iron; Zn, Zinc; K, Potassium; MOI, Moisture; CP, Crude protein; CF, Crude fat; CFIB, Crude fibre.

the two treatments, shade dried wild melon chunks exhibited better retention of bioactive compounds and antioxidants as compared to the oven dried chunks. The processing of wild melon into various products can increase wild melon consumption and thus the farmer's income. Wild melon can be a nutritious food for health-conscious consumers, allowing them to meet their nutritional requirements.

Underutilised plants contribute significantly to food security and function as a means of existence. Because of their higher nutritional value, they can also be used to complement nutritional need. Drying is one of the important processing techniques to process wild melon and is vital for its utilization in different products and long-term preservation. The proximate composition of oven and shade dried differ significantly ($P < 0.05$), but there was no significant difference ($P < 0.05$) seen in the mineral content of oven and shade dried wild melon chunks. Shade dried chunks had higher antioxidant activity (both by DPPH and ABTS methods) than oven dried chunks. Other bioactive compounds including total phenols, flavonoids, alkaloids and ascorbic acid were also higher in shade dried chunks as compared with the oven dried chunks. There was adequate retention of antioxidant activity, phenolic and flavonoid content of wild melon products during three months storage

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