INTERNATIONAL ASSOCIATION OF BIOLOGICALS AND COMPUTATIONAL DIGEST
International & Peer-Reviewed Journal
E-ISSN: 2583-3995

SEASONAL ANALYSIS OF PHYTOCHEMICALS IN MORINGA CONCANENSIS NIMMO EX DALZ.AND GIBSON FROM SOUTH SAURASTHARA ZONE, JUNAGADH- GUJARAT, INDIA.

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ABSTRACT

The Methanolic extract of the Leaves of Moringa concanensis (family:Moringaceae) was tested for Phytochemicals and total flavonoid test. Qualitative phytochemical analysis of Moringa concanens is leaves extract was carried out with a view of developing leads for new therapeutic products. The results indicate that Moringa concanensis is rich in phytoconstituents. It also shows high amount of Flavonoid in Monsoon season as compared to summer which is important for human health because of their antioxidant, antimicrobial and anti-inflammatory activities.

Keywords: *Moringa concanensis, Phytochemical analysis, Total Flavonoid content, Junagadh.*

INTRODUCTION

Medicinal plants played a significant role in the socio-cultural, spiritual, and medicinal lives of Indigenous people of India. In most of their preparations and formulations, the Indian system of medicine, which includes Ayurveda, Siddha, Unani, and Homeopathy, uses plant-based basic ingredients (Srikrishna, L.P *et al.,* 2008). *Moringa concanensis* Nimmo is belonging to family Moringaceae. The therapeutic values of *Moringa concanensis* are described with disease cured, part used; mode of drug preparation and method of consumption (Anbazhakan *et al.*, 2007*). Moringa concanensis* Nimmo ex Dalz.and Gibson is an evergreen tree upto eight feet height. It leaves are pinnate and obovate. Flowers are creamy white and large with irregular panicles. Creamy white petals with red vein.

Classification by Bentham and Hooker (1862-83)

Kingdom: Plantae
Class: Dicotyledons
Subclass: Polypetalae
Series: Disciflorae
Family: Moringaceae
Genus: Moringa
Species: concanensis Nimmo ex Dalz.and Gibson

It is rich in wide variety of secondary metabolites which have antimicrobial properties and can treat microbial infections. *Moringa concanensis Nimmo ex Dalz.and Gibson* is evergreen tree which is rich in bioresource of drugs used in traditional medicine, modern medicines, folk medicines, nutraceuticals, pharmaceutical and have chemical for synthetic drugs. Its whole plant parts of trees are used in treating venomous bites, painful swellings, ascites, rheumatism and bark is used in treating skin disease, leaf used in anti-ulcer activity, fruit in dysentery and diarrhea and used to cure cough and cold. (Vijayarajan, M., & Pandian, M. R. (2016). Leaves are used as medicine to treat skin tumor, alimentary diseases, tiredness, diabetes, Fire burn wounds, jaundice and reducing blood pressure. Balamurugan, V., & Balakrishnan, V. (2013)

Material and Methodology

Collection of Plant Materials

Leaves of *Moringa concanensis Nimmo ex Dalz.and Gibson* were collected from Junagadh (South Saurasthara Zone) in Summer (March- May2020) and Monsoon (July-Oct2020) season of the year 2020. Collected plant parts from healthy and not infected by any pathogen.

Leaves were washed and shade dried and then were converted into fine particles by using mortar-pestle and stored in bottle for further analysis.

Preparation of Leaf Extract

Methanol Extraction

For preparation of methanol extract dried leaf plant powder (10 g) was added in 100ml of methanol and left for 24 hours at room temperature than filtered in petri plate, lids were kept open for drying and further analysis Quantitative and Qualitative methods were done.

Phytochemical Analysis

Qualitative Phytochemical Analysis -K. Sahira Banu and Dr. Cathrine (2015)

Quantitative Phytochemical Analysis-TFC (Total Flavonoid Content)-Nidal Jaradat, Fatima Hussen and Anas Al Ali (2015)

Sr no.	Analysis name	Plant/Place name (Moringa) Summer Season	Plant/Place name (moringa) Monsoon Season
		Junagadh	Junagadh
1	**Alkaloid:**		
	Mayer's	++	++
	Dragendroff's	++	++
	Wagner's	++	++
2	**Cardiac glycosides:**		
	Keller – Killiani Test	++	++
3	Quinone:	+	++
4	Steroids:		
	Salkowski Test	+	-
5	Flavoids:		
	Lead Acetate	**++**	**++**
6	Tannins and Phenolic		
	$FeCl_3$ solution	+	-
	Phenol	++	++
7	Saponins:		
	Foam Test	+	+
8	Proteins:		
	Biurret Test	-	-
	Million's Test	++	++
9	Coumarin	++	++
10	Carbohydrates:		
	Benedict's	+	+
	Molisch's	-	-
11	Anthraquinone glycosides	-	-

Table 1: Preliminary Analysis of Moringa taken in Monsoon and Summer season

RESULT AND DISCUSSION

Results shows presence of Alkaloids, Cardiac glycosides, Quinone, Steroids, Flavonoid, Tannins and Phenolic, Saponins, Protein, Coumarin, Carbohydrate were present in *Moringa concanensis Nimmo ex Dalz.and Gibson* Anthraquinone glycosides were absent

Total Flavonoid Content

The total flavonoid content for Methanol extract of *Moringa concanensis Nimmo ex Dalz.and Gibson* plant presented as well as absorbance of standard compound (Quercetin) were shown at different concentrations i.e., 0.1,0.2,0.3,0.4 and 0.5. The TFC content of the leaf extracts was determined by calibration curve ($y = 6.28x - 0.154$; $R^2 = 0.9974$) prepared from the quercetin concentrations (Figure 1) and expressed in mg of quercetin equivalence (QE) per gram. The amounts of flavanoid compounds in the methanol extract were obtained from regression equation and the values were expressed in quercetin equivalence (figure 1).

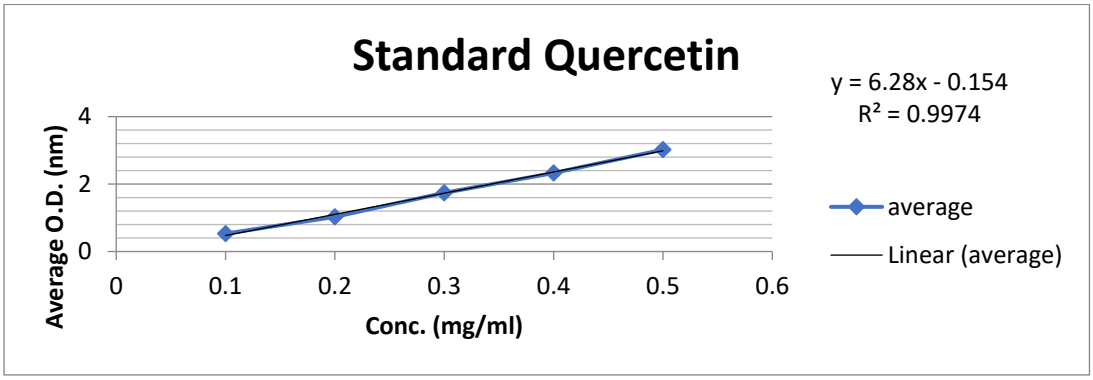

Figure 1: Shows Standard value of Quercetin at different concentration

Quercetin concentration(miligram/ml)	**Absorbance (mean value) at λmax =415nm**
0.1	0.53
0.2	1.03
0.3	1.74
0.4	2.33
0.5	**3.02**

Table 2: Shows different concentration of Quercetin and its absorbance
Standard curve of Quercetin indicated the equation of y = 6.28x - 0.154 and ***R2*** = 0.9974

Junagadh (TFC)		
Concentration	**Summer 2020 (mg QE/ml)**	**(September)Monsoon 2020 (mg QE/ml)**
0.1	0.511	0.907
0.2	0.963	1.447
0.3	1.359	2.075

0.4	1.817	2.628
0.5	2.439	3.111

Table 3: Shows difference in summer and monsoon season of Junagadh

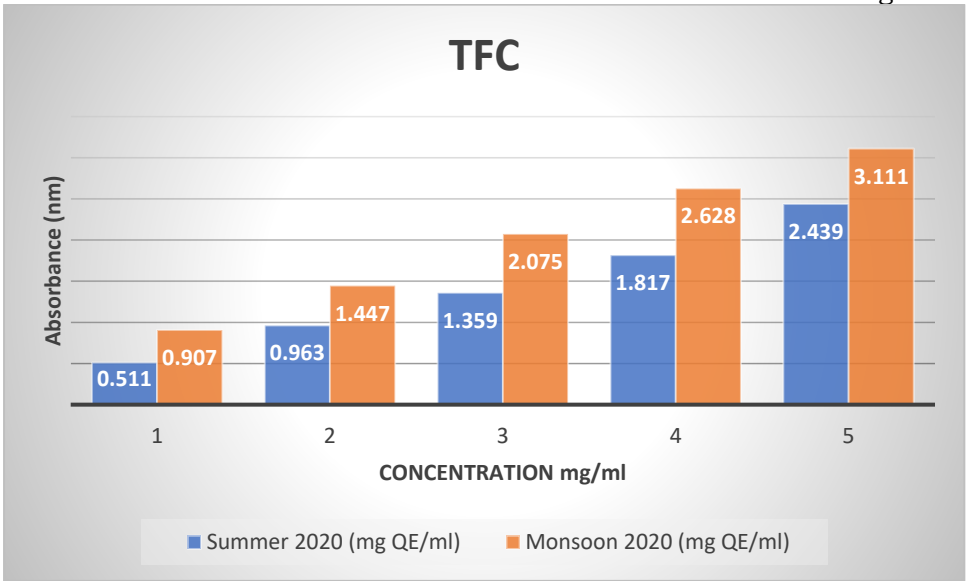

Figure 2: Shows Total Flavonoid content in summer and monsoon season

Summer and Monsoon season were selected for comparison in Agro climatic zones of South Saurasthara Zone were Dry sub humid climate; Junagadh. Table 3 and figure 2 shows comparison of Summer and Monsoon season of South Saurasthara Zone were Dry sub humid climate in Junagadh having higher amount of TFC at 0.5 concentration in Monsoon season i.e., 3.111 mg QE/ml as compared to summer season i.e., 2.439 mg QE/ml.

CONCLUSION

In leaves of *Moringa concanensis* Nimmo ex Dalz.and Gibson, preliminary analysis and Total Flavonoid Content were performed comparing Monsoon and Summer season taken from Agro climatic zones of South Saurasthara Zone having Dry sub humid climate. Preliminary analysis of *Moringa concanensis* Nimmo ex Dalz.and Gibson leaves show presence of Alkaloid, Cardiac glycosides, Quinone, Steroids, Flavoids, Tannins & Phenolic, Saponins, Proteins, Coumarin, Carbohydrate and absence of Anthraquinone glycosides. This result was seen in both Summer and Rainy season of South Saurasthara Zone were Dry sub humid climate occurs. Total Flavonoid Content of South Saurasthara Zone shows high amount of flavonoid content in Monsoon season in compared to summer season.

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