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BIOCHEMICAL AND PHYTOCHEMICA ANALYSIS OF DIPTERYGIUM GLAUCUM COLLECTED FROM CHOLISTAN DESERT

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Abstract: The present study evaluates the Biochemical and phytochemical analysis of Dipterygium Glaucum from Choilsitan desert. Ash contents, carbohydrates, crude fibers, crude fats, were carried out along with the estimation of minerals.determination of biochemical constituents indicate the prescence of total carbohydrates 0.156%(0.174 reducing sugars and0.041% non reducing),starch contents 0.053%,crude fibers 26.83%,crude fats 13.30% and nitrogen contents 0.014%.Concentration of sodium was 3.3%,Potassium 37.6%,lithium 0.1%,Calcium 0.01%,Magnesium 0.022%,nickel 0.764%,copper 2.372%,manganese 0.003%,sulphur 0.8%, Phosphorous 1.60%. Moisture and ash contents were 5.60% and 4.75% respectively. alkaloids, glycoside, cardiac glycoside, bound anthraquinones and saponins were present while flavonoids and unbound anthraquinones were absent.no anti bacterial activity was found in this palnt extract

Key words: Dipterygium , minerals, nitrogen, protein, carbohydrates, Phytochemicals.
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Introduction

Cholistan desert covering an area of about 26000 Km^2 is situated in the eastern side of the Punjab province.it is surrounded by district Bahawalnagar in north east,in the west side of district Bahawalpur(Baig etal;1980). The people of Cholistan desert lead a nomadic life, moving from one place to another within the desert in search of water and fodder for their animals (Akbar, 1996).

Underground water in the Cholistan desert is at the depth of 30-40 m. Mainly the area consists of stabilized or unstabilized sand dunes. The soils of the Cholistan desert are sandy and at some places it is saline. These soils are formed from two main types of materials, river alluvium and sands. Different types of soils present in Cholistan desert are dune lands (44%), sandy soils (37%), loamy soils (2%) and saline sodic clayey soils (17%). (Rao et al., 1989, FAO 1993).

Climatic conditions of Cholistan desert are extremely xeric throughout the year with seasonal variations. Winters are mild with lowest temperature rarely touching freezing point leading to frost formation. Summers are dry with high temperature occasionally passing 51°C. (Akhtar and Arshad 2006, Mughal 1997).

Dipterygium Glaucum is a plant belongs to family Capparidaceae it is a much branched under shrub, up to 60 cm tall, glabrous rarely glandular, woody at the base. branches of this plant are selender, leafless. flowers minute in lax ebracteate racemes; pedicals 2-3 mm long. Dipterygium Glaucum is distributed in Arabia,Egypt,Sudan and Pakistan.

Material and Methods

Dipterygium Glaucum collected from Cholistan desert were dried under shade and crushed in grinder then finally used for further analyses. Different standard methods described in AoAc (1984). Were used for Nutritive analyses.

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Benedict's quantitative reagent (BQR) were used for carbohydrates. Crude protein and nitrogen was determined by Kjehldahl method. Mineral analyses were carried out by using flame photometer. Extraction of crude protein were carried out by Soxhlet apparatus and estimation of crude fiber were carried out by using acid base treatment. Antibacterial activity was determined by using this diffusion method. Against Staphylococcus aureus, Escherichia coli and Salmonella typhe.

The condensed extracts were used for the Screening of phytochemicals such as alkaloids Brain and Turner method (1975)Flavonoids (willstaltre 1996) glycosides brain and Turner (1975) Cardiac glycoside Brain and Turner (1975) Unbound anthraquinone Brain Turner (1975)Bound anthraquinones Brain and Turner (1975)Saponins Brain and Turner(1975).

Results

Table 1:Biochemical analysis of Dipterygium Glaucu

Sr. No.	parameters	Contents Percentage
1.	Moisture contents	5.60
2.	Ash contents	4.75
3.	Crude fiber	26.83
4.	Crude lipids	13.30
5.	Nitrogen	0.014
6.	Starch value	0.053
7.	Carbohydretes	0.156
8.	Reducing sugars	0.174
9.	Non-reducing sugars	0.041
10.	Crude protein	0.08

Table 2: Mineral analysis of Dipterygium Glaucum

Sr. No.	Mineral Cations	Concentration Percentage
1.	Calcium	0.01
2.	Magnesium	0.022
3.	Phosphorous	1.60
4.	Sodium	3.3
5.	Potassium	37.6
6.	Lithium	0.1
7.	Nickel	0.764
8.	Sulphur	0.8
9.	Cobalt	2.372
10.	Manganese	0.003

Table 3: Phytochemical constituents in Dipterygium Glaucum

Sr. No.	PARAMETERS	RESULTS
1	Alkaloids	+
2	Glycosides	+
3	Cardiac glycosides	+
4	Bound anthraquinones	+
5	Unbound anthraquinones	-
6	Saponins	+
7	Flavonoids	-

All the extract were Positive for alkaloids, glycoside, cardiac glycoside, bound anthraquinones and saponins and negative for flavonoids and unbound anthraquinone

Table-4: Zone of inhibition by different plant extracts for *Dipterygium Glaucum*

EXTRACTS	*S. aureus*	*E. coli*	*S. typhe*
1. AQUEOUS EXTRACT	-	-	-
2. METHANOL EXTRACT	-	-	-
3. CARBON TETRA-			
-CHLORIDE EXTRACT:	-	-	-
4. STANDARD ANTIBIOTIC:	1.6-1.9	1.5-1.7	1.6-1.7
(+ve Control)			
Augmentin			
5. SOLVENTS:			
(-ve Control)			
Water	-	-	-
Carbon tetrachloride	-	-	-
Methanol	-	-	-

No zone of inhibition of bacterial growth was measured for both, gram +ve and gram –ve bacteria, so no antibacterial activity was found in these plant extracts

Discussion

Phyto and biochemical analyisis of Dipterygium glaucum was performed.the results described above shows that concentration of carbohydrates was o.156%,having 0.174% reducing and 0.041% non-reducing carbohydrates.similar kind of results were achieved by Rashid et al;(2002)working on Cressa cretica, collected fron cholistan desert. A nitrogen content deermined by Kjeldahl method was low (0.041%) and protein contents 0.08%, indiating that Dipterygium glaucum has not nutritive value and it cannot be utilize as fodder for grazing animals. Similar studies have been documented by Rashid el al., (1999).

The physico-chemical properties of the plant determined by the standard methods showed high iodine value (3.30%) indicating that Diptergium glaucum has unsaturated fatty acids. On the other hand peroxide value noted in this plant is low (0.12%). Rashid (1994) found same results regarding the iodine value and peroxide value in Suaeda fruticosa, collected from Cholistan desert. Rachid et al., (1999) reported similar results of iodine and peroxide value in Heliotropium crispum and calinan lotoides, collected from desert.

Concentration of sodium, potassium and phosphorous was high in Diptetygium glaucum. It has been reported by Gopal et al., (1988) tht in desert plants high level of Na and phosphorous is present which maintain

the electrolyte in desert animal high temperature. Mineral also play vital role as co- factors for various enzymes and a number of metalloenzymes. These mineral therefore help in active growth and normal metabolism in plants. High concentration of Na, K and P are characteristics of the desert plants. Further lithium, cobalt, nickel, and sulphur were in lesser concentration. It may be due to reason that the desert soils particularly the sand dunes are very poor in such metals composition. On the other hand concentration of lead, cobalt, chromium and copper was high. These results are in correspondence with the finding Rashid et al., (1999). These metals have been reported in sub-optimal concentration in soil samples collected from difference areas of Cholistan desert (Ashraf at al., 1999).

Phytochemical constituents are analysed qualitatively in, Dipterygium glaucum showed that unbound anthraquinones and flavonoids were absent in plant, but the glycosides, cardiac glycosides, alkaloids, and saponins were present, which are essential and medicinally important ingredients of the plant. Their concentrations may vary following the adapted factors in Cholistan desert.

The antibacterial activity in *Dipterygium glaucum was determined against Escherichia coli, Staphylococcus aureus and Salmonella typhe*. This plant has no activity in water, methanol and carbon-tetra-chloride.

Conclusion

In Summary,the present sdudy reveals some useful information about the biochemical and phytochemical analysis of *Dipterygium glaucum*. Medicinally, this plant should be explored and active components are isolated and their structure determined.it is also possible that some useful compounds may be exploited for biological use.

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