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Status and distribution of Range Plants Genetic Resources in Al Sabaloga Biosphere Conservation area, Sudan

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Key words: Geographical distribution, plants genetic resources and reserve area

Abstract:

The study was conducted in the Al Sabaloga area in 2017. The objective of this study was to investigate the status and distribution of range plants genetic resources in the study area. Sample size of 131 was chosen randomly to collect primary data. The data were coded, summarized, tabulated and processed. Analysis was conducted using (SPSS) computer program. The results were presented in the form of a frequency distribution. The result of this study represented in an ecological zone in the study area about (67%) Nile bank and island, Goz (35%), Valley (22%), Plains (17%) and Mountains (17%). For example, of Range plants genetic in the area *Acacia seyal* var *seyal*, *Acacia nilotica* sub sp *nilotica*. The study recommended for monitoring and periodic of range plants in the AL Sabaloga Ecosystem.

Introduction:

Sudan is a vast country with an area of 1.8 million km². It lies between latitudes 10° and 22° N and longitudes 22° to 38° E. Its landscape consists primarily of gently sloping plain, with the exception of Jebel Marra, Massif Red Sea Hills, and Nuba Mountains. Mean annual temperatures vary between 26°C and 32°C across the country.

The northern part is almost desert and semi desert with average annual temperatures around 30° C and average annual rainfall about 150 mm/year. The central area is semi-desert to savannah with average annual temperatures that are around 27° C, and rainfall averaging to about 200 mm/year. Rainfall, which supports the great majority agricultural activity, is erratic and varies significantly from the northern to southern ranges of the country. Sudan can be ecologically divided into five vegetation zones according to rainfall patterns from North to South. These are: desert: (0-75 millimeters of precipitation) , semi-desert: (75-300 mm), low rainfall savannah on clay and sand: (300-800 mm), high rainfall savannah (800-1500 mm), mountain vegetation: (300-1000 mm) (FAO, 2012). Sudan is endowed with a wide range of ecosystems and species diversity. The ecological zones extend over a wide range from the desert in the extreme north to the savannah. According to the recently published, Land Cover Atlas of Sudan, (FAO, 2012). Forests together with Rangeland represent 35.6% of the total country area.

Sudan is rich in biodiversity within diverse environmental systems making it endowed with flora and fauna which are being subjected to a number of threats as a result of natural factors and human activities. This study was aimed to to investigate of status of range plants genetic in Al Sabaloga area.

Methods and Study Site:

Al Sabaloga Reserve declared in 1946 with a total area of 116000 hectares. It lies on the western bank of River Nile, at the 6th cataract, about 150 km from Khartoum, the Capital of Sudan. It is located in the

semi-arid climatic zone at latitude N31- 17 and E 33- 16 and longitude. The loop method (Parker and Harris, 1959) had been used to measure botanical composition of the grassland. The point-center quarter method (Cottam and Curtis, 1956) had been used to measure density of trees. A preliminary species identification was carried out using a set of keys (Andrews, 1950, 52, 56), Hutchinson and Dalziel (1963), and Braun *et al.* (1991). In addition, Sample size of 131 was chosen randomly to collect primary data (Questionnaire). Analysis was conducted using (SPSS) computer program.

Results:

Table (1): Percentage of respondents according to sex

	Frequency	Percent
Male	95	72.5
Female	36	27.5
Total	131	100.0

Table (2): Results of vegetation cover

No	Ecological zone	Ground cover
1	Nile bank and island	67%
2	Valley	22%
3	Goz	35%
4	Plains	17%
5	Mountains	17%

Table (3): Geographical distribution of plant composition

		Frequency	Percent	Chi- Square	DF	Sig
Nile bank and island	Agree	129	98.5	123.122	1	.000
	Neutral	2	1.5			
	Disagree	0	0			
Valley	Agree	74	56.5	31.710	2	.000
	Neutral	30	22.9			
	Disagree	27	20.6			
Mountains	Agree	89	67.9	72.244	2	.000
	Neutral	27	20.6			
	Disagree	15	11.5			
Goz	Agree	90	68.7	75.130	2	.000
	Neutral	15	11.5			
	Disagree	26	19.8			
Plains	Agree	110	84.0	151.252	2	.000
	Neutral	12	9.2			
	Disagree	9	6.9			

Table (4): Geographical distribution of vegetation cover

		Frequency	Percent	Chi- Square	DF	Sig
Nile bank and island	Trees	84	64.1			

	Shrubs	26	19.8	56.168	2	.002
	Herbs	21	16.0			
Valley	Trees	55	42.0	9.954	2	.007
	Shrubs	27	20.6			
	Herbs	49	37.4			
Mountains	Trees	15	11.5	41.466	2	.003
	Shrubs	75	57.3			
	Herbs	41	31.3			
Goz	Trees	12	9.2	57.634	2	.001
	Shrubs	37	28.2			
	Herbs	82	62.6			
Plains	Trees	5	3.8	114.061	2	.000
	Shrubs	26	19.8			
	Herbs	100	76.3			

Discussion:

Results in table (2) during survey about (67%) Nile bank and island, Goz (35%), Valley (22%), Plains (17%) and Mountains (17%). According to table (3) by questionnaire there were most of respondent (98.5%) agreed the distribution of plant composition Nile bank and island, Plains (84%), Goz (68.7%), (67.9%) Mountains and (56%) Vally.

The result in Table (4) shows that about (64.1%) in Nile bank and island was trees. Also about (42%) in the Valley agreed was trees. In addition, about (57.3%) from the respondents in mountains was shrubs. In Goz about (62.6%) from respondents agreed were herbs. In addition, (76%) from respondents agreed were herbs. For instance of range plants genetic in the area *Acacia seyal* var *seyal*, *Acacia nilotica* sub sp *nilotica*, *Mimoso pigra* L, *Prosopis chilensis* Molina, *Parkinsonia aculeate* L, *Sesbania sesban* L, *Sesbania Arabica*, *Ziziphus spina Christi* L, *Ricinus communis* L, *Salix muriellii* Sakan, *Calotropis procera* Ait, *Solanum unquiculatum* Rich, *Pilocephalus acacia* Zucc, *Senna alexandrina*, *Senna italic*, *Cyperus rotundus*, *Cyperus bubosus*, *Boerhavia repens*.

Grasses typically have lower crude protein, phosphorus, and lignin concentration and higher total fiber and cellulose concentration than do forbs and shrubs (Holechek, 1984). Evergreen shrub leaves and buds from deciduous shrubs have higher crude protein, phosphorus, carotene and digestibility levels and lower fiber levels than grasses and forbs when forage is dormant (Holechek, 1984).

Conclusions:

Monitoring and periodic of range plants in the AL Sabaloga Ecosystem. Sustainable management of natural resource and create community awareness. Control of invasive species spreading resulted from land degradation, protection, conservation.

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