

**RANGE POTENTIALITY OF SOME PLANT
COMMUNITIES IN NORTH WESTERN
COAST OF EGYPT**

By

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B.Sc. Agric. Sc. (Agronomy), Ain Shams University, 2006

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ABSTRACT

Yasser Mohamed Abd El- Kariem Youssef: Range Potentiality of Some Plant Communities in North Western Coast of Egypt. Unpublished M.Sc. Thesis, Agronomy Department, Faculty of Agricultural, Ain Shams University, 2013.

This investigation was carried out during the period extending from spring 2008 till autumn 2009 at North Western Coast (NWC) of Egypt. Which were studied the natural vegetation qualitatively and quantitatively in relation to the effect of the following ecological factors:

1- Plant association:

Two different associations in location grow the sea water level. The first is association of (*Salsola tetrandra* located at latitudes of $31^{\circ} 31' 45''$ N and longitudes of $26^{\circ} 18' 27''$ E with 10 m elevation and the second one is *Haloxylon salicornicum* located at latitudes of $31^{\circ} 30' 0''$ N and longitudes of $26^{\circ} 16' 37''$ E with elevation of 171m from the sea water level.

2- Growth seasons:

Two growth seasons were chosen representative two different climatologically, i.e. spring and autumn.

The main results obtained were as follow:

a- Plant association:

Plant composition showed that 34 plant species belonging to 14 families were recorded under both studied associations during spring 2008 till autumn 2009. The Asteraceae family has a wide distribution (eight species as 23.5%). *Haloxylon* association was shown to have more plant families (14 families) than that of *Salsola* one (12 families). Plant density (plant/ m²) had significant difference between *Salsola* associations and *Haloxylon* one in the second year only, in this respect. Coverage percentage and abundance percentages had in significant differences. Results were true in both studied years. Frequency percentage indicated

that *Haloxylon* association was the highest frequency percentage compared with *Salsola* association. Dry forage yield (Kg. / fed.) indicated that, no significant differences were found, and these results were true in the both studied years.

Nutrients yield Insignificant differences were recorded between *salsola* association and *Haloxylon* association in dry matter, organic matter, Ash, crude protein, ether extract, crude fiber, carbohydrate and Invitro dry matter digestibility(INVDMD).

b- Growth Season

Plant composition showed great differences between autumn and spring measurements of plant families and species, palatability and unpalatability, annual and perennial plant species. The highest plant density was noticed in wet season (spring season). Coverage percentage was greater in spring season as compared with autumn season in both years. Abundance percentage was greater in autumn season as compared with spring season in both studied years. The maximum value of frequency percentage was noticed in spring season in both studied years, whilst the minimum value was obtained in autumn season in the two years of study. Dry forage yield was not similar for both autumn and spring seasons in both years of study 2008 and 2009. Dry forage yield was significant and greater in spring season compared with that of autumn one. This trend was true in both years of study. Spring season recorded significantly higher dry matter compared to autumn . Ash, crude protein, ether extract, crude fiber, carbohydrate contents and INVDMD, were significantly affected by seasons. Results revealed that the highest values of Ash, crude protein, ether extract, crude fiber, carbohydrate contents and INVDMD, were obtained with spring season and the lowest value were observed with autumn one.

C. Effect of the interaction between plant association and growth season.

The highest value Plant density was recorded with *Haloxylon* association under spring season through the two studied years. The higher values of abundance% were found with *Haloxylon* association in autumn

season. Coverage percentage scored the highest value was obtained under *Salsola* along *Haloxylon* association in spring season in the two studied years. Frequency percentage scored the highest value in spring season in the two years of study. Dry forage yield (Kg. / fed.) In the two years the highest value were recorded under spring season. The maximum values of DM contents were recorded of *salsola* association in spring season. Results indicated that the higher values of OM contents were found with *Haloxylon* association in spring season, whilst the maximum values for Ash showed with *salsola* association in spring season. The highest contents of crude protein and carbohydrate were obtained in *Haloxylon* association in spring season. In spring season, *salsola* association recorded the highest value of ether extract, INVDMD and crude fiber contents. Results between *Haloxylon* associations recorded the highest value in gross energy, digestible energy, metabolizable energy and total digestible nutrients.

Key Words: North Western Coast of Egypt, Plant association, Plant density, coverage, Frequency, Dry forage yield, Chemicals contents,

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INTRODUCTION

Under Egyptian conditions, peoples suffer from great lack in animal protein consumption than demands. This due mainly to the great lack in animal production which is greatly effected with several reasons. One of the main reasons is the great lack in the needed forage to face the animal's demands in feeding especially during summer season.

It is possible to solve this problem through different ways such as increasing forage crops through different ways such as increasing forage crops area mainly in the new reclaimed lands, introducing new productive forage crops, the use of crop production wastes, as well as increasing the productivity of the natural vegetation of the different locations in Egypt i.e., north eastern and western coast, red sea coast as well as extending till Halayeb and Shalaten. Under these locations, there are great areas which can reach about four millions faddan covered with a natural vegetation mainly to supply the present various animal types i.e., sheep's, goats, camels and wild types with most of their demands especially during the rainy seasons. Natural vegetation acts in most countries of the world as a main resource for supporting wild and domestic animals with its basic forage requirements. The productivity and quality in relation to the prevailing environmental conditions need to be assessed and clarified in order to get more justification for the optimum and adequate use for better range management.

Range production depends on various factors such as climate, soil, botanical composition, type and intensity of management e.g. Grazing patterns and stocking rates and wild life (including insect and rodents); climatic elements such as rainfall and temperature are the two most important factors affecting distribution as between them they are responsible for the amount of moisture which the vegetation will receive (**Shahba 1994**).

The North West Coast (NWC) region of Egypt is one of the arid regions which have a long history of intensive land use, mainly grazing and

rainfed farming. This area is extended to 480 km along the Mediterranean Sea from west Alexandria to EI-Saloom region boundaries with a depth of about 25-60 km south inland from the sea shore. It is considered one of the rich areas for grazing in the Egyptian coastal region (Heneidy, 2002). The most important land-use in the NWC region of Egypt is grazing. The natural vegetation includes many annual plant species, mostly perennial herbs, few grasses, shrubs, sub-shrubs and a few trees. These species represent 50 % of the total flora of Egypt (UNESCO, 2003). This natural vegetation needs to be investigated in order to determine its present condition and trend whatever going to progress or deterioration.

It is well known that the natural vegetation is found always in an equilibrium with the dominant ecological conditions in the locations such as , climatic, edaphic and biological factors. Needs to study these reactions is more important in order to plan how to manage the way to improve the productivity of this range areas Under North Western Coast of Egypt, several studies proved that the natural vegetation is in case of great deterioration due to many factors mainly grazing, it was in the improper season of use, holding with the uncorrected type and number of animals as well as the animal distribution within the grazed areas. This finally can induce an invaluable events such as decreasing the vegetation composition since the palatable species will decrease and dominance by the unpalatable ones, decreasing in the plants species, frequency, density, coverage and forage productivity. Accordingly, it is needed to try to making decision to improve whatever naturally or artificially revegetation. Since the natural vegetation is composing of different associations according to the different edaphic factors as well as its stratification and conditions due to the climatologically ones; it is more valuable and helpful in determining the optimum way in range improvement to get more forage production. Also, it is well known in case of artificial revegetation under the great state of deterioration of the vegetation that planting with the shrubby starts as which could accelerate the improvement process inducing more basal and canopy cover for the

cultivated plant species as well as the invading ones. This can happen during less periods and tend to increase the productivity of the unit area.

The aim of this present investigation is mainly concerned with the following topics:

Indicate the vegetation composition and productivity of different locations of soils near or far away from sea water (saline associations) since the soil salinity is different much. Also, determine that.

Vegetation through growth season mainly spring and autumn and biological value of the vegetation due to these factors.