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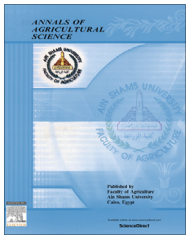

A study on the Flora of El-Qantara Sharq in North Sinai, Egypt

دراسة على نباتات الفلورة بمنطقة القنطرة شرق - شمال سيناء- مصر

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Abstract The study on the Flora of El Qantara Sharq revealed that the presence of 138 species belonging to 110 genera follows 39 Angiospermae families. The percentages of the representation of these families were Gramineae by 15.9%, Compositae by 13.7%, Leguminosae by 10.8%, Chenopodiaceae by 10.1%, and Cruciferae by 4.3%, while each of Caryophyllaceae, Cyperaceae and Polygonaceae was represented by 3.6% and the percentage was 2.8% for both of Convolvulaceae and Zygophyllaceae whereas it was 2.1% for each of Aizoaceae, Amaranthaceae and Tamaricaceae. The percentage was 1.4% for each of Euphorbiaceae, Orobanchaceae, Solanaceae and Umbelliferae. The remainder families, Asclepiadaceae, Ceratophyllaceae, Combretaceae, Geraniaceae, Haloragiadaceae, Juncaceae, Labiatae, Malvaceae, Neuradaceae, Nitrariaceae, Palmae, Plantaginaceae, Potamogetonaceae, Primulaceae, Ranunculaceae, Salicaceae, Scrophulariaceae, Thymelaeaceae, Typhaceae, Urticaceae and Verbenaceae were represented by one species (0.7%) for each. Shrubs were represented by 11.5% of the recorded species while the percentages of perennial and annual herbs were 21.7% and 63% respectively. Three parasite species were recorded: ***Cistanche phelypaea*** (L.) Cout., ***Cuscuta campestris*** Yunck. and ***Orobanche crenata*** Forssk.

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Introduction

The Sinai region occupies the far northeastern corner of Egypt, where the two major continents of Asia and Africa meet along its eastern boundaries. It occupies an area of ca. 61,000 sq. km, stretched between the longitudes 32° 17′ and 34° 54′ E. and latitudes 27° 42′ and 31° 02′ N. The region represents a peninsula of an almost a rectangular area extending southward into a triangular, delimited from the west by the Suez Canal, from north by the Mediterranean Sea, from the east by Palestine and from south by the V-shaped gulfs of Suez and Aqaba, north of the Red Sea (Abd Allah et al., 1984). Täckholm (1974) divided the Sinai Peninsula into three portions: the eastern Mediterranean coastal strip (Mp), the Isthmic desert (Di) region which extends from the Suez Canal and the eastern borders of Egypt and the southern triangular portion of the Peninsula, known as Sinai proper (S) region. El-Hadidi et al. (1989) divided the Peninsula into five subdivisions, while Boulos (2009) considered the entire Sinai Peninsula as one region (S).

North Sinai environment is currently subjected to a rapid development induced by agricultural development projects of El-Salam Canal transferring the Nile water to Sinai (Amer, 2004).

Several works were conducted on Sinai Peninsula, and Abd Allah et al. (1984) recorded 732 species that belong to 404 genera from 88 families in a taxonomical and documentary study in the herbarium specimens, originating from the Sinai Peninsula, preserved in the herbarium of Flora and Phytotaxonomy Researches Department which is referred to by the symbol CIAM. Danin et al. (1985) recorded the distribution and ecological notes on 886 plant species collected during a comprehensive study of Sinai. El-Hadidi et al. (1989) studied and annotated the list of the flora of Sinai including 984 species belonging to 465 genera of vascular cryptogames and flowering plants. A total of 114 species of seed plants were collected from Geble Halal area during the rainy season of 1992 (Gamal El-Din, 1993).

El-Qantara area (30° 30′–31° 05′ N) (32° 20′–32° 40′ E) is situated in the western corner of Sinai Peninsula. The area extended from North Ferdan to Rabaa village covering about 75.000 feddan. The plain rises up to 116 m above the sea level and slopping northward to the Mediterranean Sea and westward to the Suez Canal. The area is characterized by arid climate with Mediterranean features (dry hot summer and moderate cold winter) (Amer, 2004).

The study of natural vegetation on El-Qantara area, North Sinai, revealed 113 species from 45 families (Amer, 2004). A recent floristic and environmental survey undertaken on the roadside verges along the main highway between El Arish and Rafah recorded 78 species from 31 vascular plant families that were found, of which 24 are annuals and 54 perennials Abd El-Ghani and El-Sawaf (2005). Mosallam (2007) found 124 species belonging to 108 genera and 42 families in Saint Katherine protectorate, while Soliman (2007) recorded 50 species in a survey of five wadies (Arbeien, Ithla, Sheraji, Talaa and Tinya) in South Sinai.

The present work aims to study the plant diversity of the Flora of El-Qantara Sharq and to document the recorded species by herbarium specimens.

Material and methods

The study on the Flora of El-Qantara Sharq (30° 30′–31° 05′ N) (32° 20′–32° 40′ E) was conducted during the period from April 2012 to March 2014. The area of study extended from North Ferdan to Rabaa village, and it covers 75.000 feddan (Fig. 1). G.P.S. e Trex Vista was used during the study. Weeds and wild plants were collected from ten different sites, which were chosen randomly. Twenty quadrates (1 m^2) were randomly chosen from every site. The sites that were chosen include different habitats such as cultivated lands, abandoned lands, roadsides, canal banks, aquatic plants, salinized lands and sabkhas, in addition to different soils such as clay, sandy, and salty. The main crops studied were wheat, clover, and sugar beet. Plant locations, habitat information, habit (i.e. annual or perennial), and notes about the plants as the color of flowers may change by drying were recorded in the fields and never depend on the memory to remember the data.

The authors collected about 530 specimens from the studied area. The collection was prepared as herbarium sheets. These herbarium sheets were preserved in the herbarium of Flora and Phytotaxonomy Researches Department (CIAM) and arranged according to Engler's system. The specimens were identified according to Täckholm (1974) and Boulos (1999, 2000, 2002, 2005). The species recorded were arranged alphabetically within their families. For each species original publication, reference, habitat and life form, floristic category and local names were cited.

Results

In the following there is a detailed list for the species recorded and mentioned in Table 1, together with their habitat types, life forms, floristic categories and local names in an alphabetical arrangement within their families.

For floristic categories the following abbreviations are used: IR-Tur = Irano-Turanian; Euro-Sib = Euro-Siberian; Med = Mediterranean; Sah-Sind = Saharo-Sindian and Sud-Zamb = Sudano-Zambezian.

* Refers to the species with a new distribution in Sinai Peninsula.

** Refers to the species with a new record in Egypt.

1. Aizoaceae

1.1. *Mesembryanthmum crystallinum* L., Sp. Pl., ed. 1, 480 (1753); Boulos (1999), p. 45.

Habitat and life form: Maritime sand and edges of salt marshes. Therophyte.

Floristic category: Med Region.

Local names: Ghasool, Tarteer, Bizz el-kalba, Samh, Semeh.

1.2. *Mesembryanthmum forsskaolii* Hochst. ex **Boiss.**, Fl. Orient. 2: 765 (1872); Boulos (1999), p. 45.

Habitat and life form: Saline sandy soil. Therophyte.

Floristic category: Med and Sah-Sind Regions.

Local names: Hamd.