Introduction

Egypt is a part of the North African Desert. Its area is about one million km² divided by the River Nile into Western Desert of about 681,000 km² and an Eastern part comprising the Eastern (Arabian) Desert (223,000 km²) and the Sinai Peninsula (61,000 km²). The Nile region including the Nile Valley, the Nile Delta and the Nile Fayoum forms a riparian Oasis (40,000 km²) that is the densely inhabited farmlands of Egypt.

From the earlier and most valuable works of **Forsskal (1775), Delile (1813), Ramis (1929),** the flora of Egypt is still under various taxonomical and floristic studies, the most important of these are those of Tackholm in collaboration with Drar, who presented four volumes of the *Flora of Egypt* (**1941; 1950; 1954; 1969**). **Montasir** and **Hassib (1956)** published also short account on the flora of Egypt. These are followed by **Tackholm (1956** & **1974), Boulos (1995, 1999, 2000, 2002** and **2005). Boulos (1995)** stated that the flora of Egypt comprises 2094 native and naturalized species under 712 genera and 121 families.

The grasses are grouped into about 600 genera, with nearly 5,000 species worldwide. They have a wider range than any other family of the flowering plants. The grass family includes about 75 per cent of the cultivated forage crops and all the cereal crops **(Hughes** *et al.* **1962).** In Egypt Gramineae (Poaceae) is the largest family which contains 277 species (including 27 cultivated species). ***Imperata cylindrica*** **(L.) Raeush., Nomencl. Bot., ed. 3, 10 (1797)** and ***Desmostachya bipinnata*** **(L.) Stapf in Dyer, FI. Cap. 7: 632 (1900)** are two species belonging to this family distributed in different habitats of Egypt: crops fields, canal banks, coastal plains, sand plains, waste lands and saline soils.

Imperata cylindrica is a rhizomatous perennial grass that has infested about 200 million ha in Asia and over 500 million ha worldwide, commonly known as cogongrass or spear grass **(Lippencott** and **Mcdonald., 1996).** According to **Tackholm** and **Drar (1941)** in Egypt this plant is generally, known as halfa grass (in Arabic حلفا). It has been ranked as one of the ten worst weeds of the world **(Holm** *et al*. **1977),** being a trouble some weed in the fields throughout the tropical and subtropical regions of the worlds. It has been recorded in all continents, but it does not tolerate cool temperatures. It has been reported that its rhizomes exude allelopathic substances which inhibit growth of other plants **(Shukla** *et al*. **2003)**. It is considered a pernicious (harmful) weed due to its ability to successfully colonize, spread, and subsequently compete with and displace desirable vegetation and disrupt the ecosystem over a wide range of environmental conditions (**Holm** *et al*. **1977; Dozier** *et al*. **1988; Bryson** and **Carter., 1993)**. The genus *Imperata* comprises ten species in the world **(Hsu, 1975)** but only one species found in Egypt **(Boulos, 1995),** exhibiting its great adaptability to various habitats, particularly in the saline coastal areas and dry lands **(Cheng** and **Chou, 1997)**.

Desmostachya bipinnata is a perennial scabrous, rigid grass up to 1.5 m. tall or more, with thick creeping rhizomes **(Chand** and **Agrihotri, 1993)**, commonly known as Kusha grass. According to **Tackholm** and **Drar, (1941)** the plant is known also as halfa grass (in Arabic حلفا). It grows in saline areas of Peshawar district of Pakistan. It prefers saline and saline-sodic soils (**Sarir** *et al.* **1986)**. Although flowers may be noticed, throughout the year, its main season in Egypt is in the months of August to November. This grass is characterized by a good mechanical characteristic of fiber (**Chand** and **Agnihotri, 1993)**. It is

useful soil and sand binder and smothers plant. It is grazed in the absence of other vegetation. *Desmostachya* is considered as one of the ancient plant materials helped scientists to bring to our knowledge a true picture of ancient Egyptian civilization. Many reports present localized benefits of these grasses including uses for thatch, dry straw for making roofs forage, erosion control, paper making, and bedding material for livestock. There are also minor traditional uses as human foods and medicines **(Holm** *et al*. **1977**; **Watson** and **Dallwitz, 1992)**. Many authors have identified this grass as the material of which a variety of objects from different periods are made including baskets, ropes and mats (**El Hamy, 1957)**.

Morphologically there are a great resembles between the two plants (*Imperata* and *Desmostachya)* particularly in the absence of the spike. In fact, it is difficult to separate and identify them, without their spikes (**Tackholm** and **Drar, 1941)**

This study is aiming at the following **objectives**.

1- Study of the auto-ecology of *Imperata* and *Desmostachya* in Egypt.
2- Comparing between these two grasses Taxonomically with references to their morphological and anatomical characteristics.
3- Determining the relationship between each of the two grasses and their associated species in their communities and environmental conditions in Egypt.
4- Determining their geographical distribution worldwide and in Egypt.
5- Determining the economic potentialities of both grasses.
6- Determining the different methods for their control as pernicious (harmful) weeds.