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Research Title : *Systematic Study of the Genus Tephrosia Pers. (Fabaceae) in Saudi Arabia.*

دراسة تصنيفية لجنس التفروزيا (العائلة البقولية) في المملكة العربية السعودية

Descriptipn : The genus *Tephrosia* Pers. is a member of the family Fabaceae. The genus includes about 400 species, widespread in tropical, subtropical and the arid regions of the world. About 11 species are growing in Saudi Arabia, which are distributed through the plant committees of Saudi Arabia flora. *Tephrosia* species resemble morphologically, that the confusion on their identification can be drown, with apossiblty to record a new taxa in Saudi Arabia The aim of the present work is to do morphological; comparative anatomical study of the primary structure of stems, leaves and petioles of *Tephrosia* species in Saudi Arabia. The study includes morphological description of the species and studying the structure of stems leaves and petioles of: *T. apollinea*, *T. desertorum*, *T. nubica*, *T. pubescens*, *T. pumila*, *T. purpurea* *T. quartiniana*, *T. uniflora* and three new taxa which are named temporally *T. sp 1*, *T. sp 2* and *T. sp 3*. In addition of the study of trichomes and seed surfaces of the taxa. Morphological study of the examined taxa shows the occurrence of important characters, which can be usefull in the separation of the taxa into two groups: The first one consists of: *T.nubica*, which is charactized meanly by one seeded and long hairy fruits, while the second group includes: *T. apollinea*, *T. desertorum*, *T. pubescens*, *T. pumila*, *T. purpurea*, *T. quartiniana*, *T. uniflora*, *T. sp1*, *T. sp2* and *T. sp3* which their fruits are short hairy and multi-seeded. More othes morphological characters were established as: plant duraticdn, plant habit, leaves and leaflets shape, possion of inflorescence, flower opening time, shape of floral parts, fruits and seeds shape. All these characters were used to buit a taxonomical key for the studied species. The anatomical study of stems, leaves and petioles provided some essential characters that can be useful to classified examind specis into two groups. One can be established by the palisade tissue of leaf exatend over the main vascular boundl of midrib, this group includes *T. uniflora* and *T. sp2*. The second group consists of: *T. apollinea*, *T. desertorum*, *T.nubica*, *T. pubescens*, *T. pumila*, *T. purpurea*, *T. quartiniana*, *T. sp1*, and *T. sp3*, which the palisade Tissue of leaf note xtend (absent) over the main vascular boundl of midrib. Study of petioles provides most anatomical characters in the present work. These characters summarizd in petiole shape, cortex structure, arragments and structure of vascular system. Also the study of trichomes by SEM provides some characters, which help in the description of the