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مراجعة تصنيفية لجنس الشار (العائلة الشفوية) في المملكة العربية السعودية

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Abstract : The genus *Plectranthus* L. is a member of the family Lamiaceae (Labiatae). The genus *Plectranthus* includes about 300 species, widespread in Africa (specially in South of the Sahara), South of Arabian Peninsula, India to Australia. About seven species are growing in the western and southwestern regions of Saudi Arabia, which are distributed through the high mountains. *Plectranthus* species resemble morphologically, that the confusion on their identification can be drawn moreover. Identification of some species is doubtful. The aim of the present work is to do morphological; comparative anatomical and chemotaxonomical studies of *Plectranthus* species growing in Saudi Arabia. The study includes the morphological description of the *Plectranthus* species and studying the anatomical structures of stems, leaves and petioles, in addition to doing chemotaxonomical investigation of flavonoid compounds in the leaves of *Plectranthus arabicus*, *P. asirensis*, *P. barbatus*, *P. cylindraceus*, *P. lanuginosus*, *P. pseudomarrubioides* and *P. tenuiflorus*. The results of the morphological features of the studied species show the presence of important characters, which can be used for dividing *Plectranthus* species into two groups: The first group can be distinguished by non-branching terminal inflorescence which consists of *P. arabicus*, and *P. asirensis*. *Plectranthus asirensis* is characterized by the ovate and serrate leaves, violet calyx with an acuminate rounded tip of lower lip teeth and bluish violet corolla, whereas *P. arabicus* has obtusely serrate and dentate leaves, greenish calyx with an acuminate acute tip of lower lip teeth and bluish corolla. The second group includes: *P. barbatus*, *P. cylindraceus*, *P. lanuginosus*, *P. pseudomarrubioides* and *P. tenuiflorus*. Which are characterized with the terminal and auxiliary branching inflorescence. This group is divided into two sub-groups based on the position of the inflorescence: the first sub-group consists of *P. pseudomarrubioides* which can be distinguished by the occurrence of both terminal and auxiliary inflorescence; whereas the second sub-group includes *P. barbatus*, *P. cylindraceus*, *P. lanuginosus* and *P. tenuiflorus* which their inflorescence are terminal. *Plectranthus cylindraceus* is characterized by the dense verticals of flowers on the inflorescence axis, but the others have lax verticals. Presence of the hairs inside calyx tube distinguishes *P. tenuiflorus*, whereas, lanceolate leaves and purplish calyx and corolla separate *P. barbatus* from *P. lanuginosus* which its leaves are ovate, calyx violet and bluish violet corolla. The anatomical study of the stems, leaves and petioles of investigated species shows good anatomical occurrence of characters that can be used in the separation of studied species. The first group consists of *P. arabicus*, *P. asirensis*, *P. lanuginosus* and *P. tenuiflorus*, which can be distinguished by the dorsiventral leaves. Both of *P. asirensis* and *P. tenuiflorus* are characterized by three vascular bundles in leaves midrib which are arranged in deep reniform vascular system at the *P. asirensis*, whereas shallow reniform vascular system is observed in the *P. tenuiflorus*. The two other species: *P. arabicus* and *P. lanuginosus* are characterized by one vascular bundle in their midrib. *Plectranthus lanuginosus* can be distinguished by small vascular bundles arranged in stem sections and the absence of the pericycle fiber bundles, but *P. arabicus* has four large vascular bundles in the stem with some small bundles and the occurrence of the pericycle fiber bundles. The second group consists of *P. barbatus*, *P. cylindraceus* and *P. pseudomarrubioides* which their leaves are isobilateral. *Plectranthus barbatus* can be distinguished by the cub-shaped petioles; whereas, the two other species have an elongated cub-shaped petioles. Shallow reniform vascular system in the petiole distinguishes *P. pseudomarrubioides*, while deep reniform vascular system is observed in the *P. cylindraceus*. The study of the trichomes on the leaves by SEM shows the importance of their types in describing examined species. Glandular and glandular hairs are the two observed hairs, which are different in their size and density on both leaf sides.

Chemotaxonomical study shows some taxonomical evidences, which can be used for separation studied species. Routine were observed in all examined species except *P. cylindraceus*. Occurrence of the glycoside and aglycon compounds in the leaves of *Plectranthus* species, help to divided the species in three groups: the first consists of *P. arabicus*, *P. barbatus*, *P. lanuginosus* and *P. pseudomarrubioides* which are contains glycoside components, the second includes *P. asirensis* and *P. tenuiflorus* which are characterized by the occurrence of the both glycoside and aglycon, whereas the third group can be distinguish by the Kaempferol, Quercetin and Apigenin as aglycon components. Two keys are drown, one based on the morphological characters, the second on the anatomical characters of the stems, leaves and petiole

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