

- Document Type** : Thesis
- Document Title** : *Comparative Anatomical Taxonomical Studies of some genus Acacia seeds (Family Fabaceae) Growing Naturally in Saudi Arabia*
دراسات تشريحية تصنيفية مقارنة لبعض بذور جنس الأكاشيا (الفصيلة القرنية) النامية برياً في المملكة العربية السعودية
- Document Language** : Arabic
- Abstract** : The aim of this work is to study the morphology and anatomy of the seeds of eleven species and subspecies which include *A. abyssinica*, *A. ehrenbergiana*, *A. etbaica*, *A. etbaica* ssp. *uncinata*, *A. gerrardii*, *A. gerrardii* var. *najdensis*, *A. hamulosa*, *A. mellifera*, *A. nubica*, *A. tortilis*, *A. raddiana*, which were collected from the western and southwestern region of Saudi Arabia. The results of the morphological pods characters show different variation in color and shape, where the color varies between reddish- brown, yellowish-brown and brown- green; also reddish- green, yellowish- green and dark green. Pods shapes have different variation ranging from straight to slightly curved in species *A. abyssinica*, *A. nubica*, *A. mellifera*, *A. etbaica*, *A. hamulosa* and subspecies *A. etbaica* ssp. *uncinata*. Strongly falcate in species *A. ehrenbergiana* spirally contorted with construction in *A. raddiana* and spirally twisted in species *A. tortilis*. Morphological studies of seeds show also many different characters related to the seed shape and size, central aerole, where size difference between small seeds in *A. raddiana*, *A. tortilis*, *A. nubica* and large seeds in *A. gerrardii*, *A. ehrenbergiana*, *A. abyssinica*, *A. mellifera*, *A. etbaica*, *A. hamulosa* and subspecies *A. etbaica* ssp. *uncinata*, *A. gerrardii* var. *najdensis* has various shapes such as round to oblong or ovoid and quadrate. Studying the characters of the central aerole shows that they are undistinguished in species *A. ehrenbergiana* and distinguished in all other investigated species. Also open or closed central aerole with divergent straight equal or unequal arms, an area inside the aerole and the ratio between the central aerole area and seed surface area, where the species *A. abyssinica*, is specified by distinguished closed central aerole and species *A. gerrardii*, *A. hamulosa*, *A. mellifera*, *A. tortilis* were distinguished by open central aerole and unequal arms. Species *A. nubica*, *A. etbaica*, *A. raddiana* and subspecies *A. gerrardii* var. *najdensis*, *A. etbaica* ssp. *uncinata* is specified by open central aerole and equal arms. The character related to the level of the central aerole as specified characters show species *A. mellifera*, *A. abyssinica*, have concave central aerole, species *A. etbaica* is flat and species *A. gerrardii* and subspecies *A. etbaica* ssp. *uncinata* have convex central aerole. Scanning electron microscope of seeds surface show many different ornamentation such as, regulous: reticulate tuberculate, reticulate rugose, Jagged with grooves, granulate colliculate, rough, crimped foveolate, granulose, striated papillosed, microgranulate, reticulate foveolate. Anatomical study of seed coat, of the investigated species indicate the presence of different characters such as different lengths of Malpighian cells and its structure the light line as in the 1/3 or 1/2 the Malpighian cells. In species *A. ehrenbergiana*, *A. nubica*, *A. etbaica*, *A. hamulosa*, *A. abyssinica*, *A. raddiana* the Malpighian cells size ranges between 30-60 μm and in species *A. gerrardii*, *A. tortilis* and subspecies *A. etbaica* ssp. *uncinata*, *A. gerrardii* var. *najdensis* the size is between 61-85 μm . also the inner integument specialized by one or several parenchymatous layer with thin or thick cell wall and with or without reserve food materials. Two keys conclusions are drawn, one is based on the morphological characters of seed, the second is based on the anatomical characters of the seed coat.
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