



PALYNOLOGICAL STUDY ON THE SUBSURFACE CRETACEOUS IN THE WESTERN DESERT, EGYPT

A Thesis

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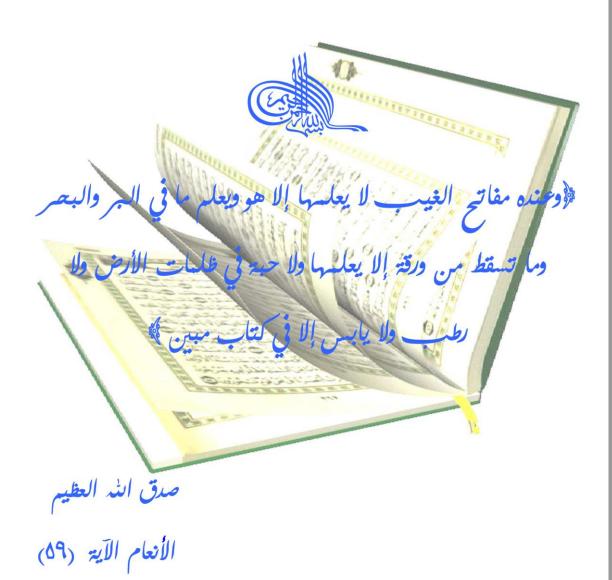
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I declare that the work contained in this thesis is the result of my own investigations. It has not been previously submitted for any degree at this or any other University. Zainab Mohamed El-Noamani This thesis is dedicated to... my parents, my siste**r**s, and my sweet heart Omar, Belal & Eyad Without whom it could not be possible.

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Abstract



Abstract

Fifty five cutting samples from the Cretaceous Bahariya and Abu Roash formations of the Lotus#3 borehole in the North Western Desert of Egypt, have been palynologically investigated. The study vielded copious amounts of mostly well-preserved palynomorphs (193 species), out of which 57 spores, 38 gymnosperm pollen, 39 angiosperm pollen, one fungal palynomorph, one fresh water algae, one prasinophyte, 46 cyanobacterium, five dinoflagellate cysts and five acritarchs, in addition to various morphological forms of scolecodonts and microforaminiferal inner test linings. Of these, One new angiosperm pollen belonging to the genus Cretacaeiporites is described and a new combination C. krutzschi (Boltenhagen) comb. nov. is also proposed. In addition, one genus (Rivularia) and five species (Ariadnaesporites cristatus, Crassosphaera ornata, Fromea amphora, Odontochitina tabulata and Ovoidites gracilis) are recorded for the first time from the Cretaceous of Egypt.

Five informal assemblage palynozones are proposed: *Dinogymnium* spp.–*Odontochitina porifera* (Coniacian–Santonian); Unnamed Zone (late Turonian–early Coniacian); *Ephedripites ambiguus–Triporoletes blanensis–Trichodinium* spp. (late Cenomanian–Turonian); *Afropollis jardinus–Afropollis cf. kahramanensis–Dichastopollenites ghazalatensis* (early–late Cenomanian); *Elaterosporites verrucatus–Sofrepites legouxae–Cretacaeiporites* spp. (late Albian–early Cenomanian). These palynozones were correlated with their equivalents from the North Western Desert of Egypt.

Three palynofacies zones which are environmentally controlled are identified and the source rock potential is evaluated. Kerogen type II, oil-prone material is suggested to the Bahariya and basal part of Abu Roash "G", "D", "C", "B", "A" members while kerogen type I-II, highly oil prone is postulated for the upper part of Abu Roash "G", "F" and "E" members.

The information gained from the climatic tolerances of modern plants with affinities to the encountered sporomorphs, suggest that