

## **CRITICAL REVIEW OF THE UPPER CRETACEOUS KOMETAN CHALKY LIMESTONE IN ZAGROS BASIN, NORTHEAST IRAQ**

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### **ABSTRACT**

*The white chalky limestone (Kometan Formation) is Late Turonian–Middle Campanian in age and crops out in the High, Imbricate and Thrust Zones of northern Iraq. It occurs too in subsurface of Middle Iraq in the oil fields and laterally changes to Bekhme and Mashurah Formations toward northwest and west respectively. Stratigraphically, it is located between Shiranish Formation (Middle-Late Campanian), at the top, and Gulneri Formation (Late Cenomanian-Early Turonian) at its base. It has the thickness of about 40-120 meters and deposited in pelagic realm.*

*All previous studies have defined it as well bedded deep marine (pelagic) and fine grained limestone with concentration of chert nodules and stylolites on or near bedding surfaces. The only recorded fossils are nannofossils, planktonic forms in addition to rare benthic forams. Conversely, the most recent study has changed all the above features to massive, homogenous limestone with abundant Thalassinoides trace fossils and envisaged the bedding surfaces to be pseudo-bedding formed by stylolization.*

*The present study is focused on the critical analyses and comparison of all the above ideas and introducing new ones. The features of the Thalassinoides, massiveness and pseudo-bedding are discussed and their absence have been confirmed and justified by field and lab works. Additionally, it was evidenced that well bedding is intrinsic characteristic of the formation in all sections and actually has well bedded (relatively thinly bedded) of depositional origin. It is also shown that the chert nodules and chert bedding, in the formation, have no relation with trace fossils due to absence of bioturbation, detrital clasts and bioclasts, sorting and color change. Moreover than that, the previous ideas about the deposition of Kometan Formation in Zagros Foreland basin is refused and it is shown that it was deposited on continental margin of Neo-Tethys before ophiolite obduction and foreland generation*

**Keywords:** *Thalassinoides, pseudo-bedding, depositional bedding, Kometan formation, Upper Cretaceous chalky limestone.*