5. Discussion and Conclusions

The cryptic ecosystems of modern and ancient reefs contain substantial amounts of biodiversity; however, when and how metazoans adapted to such spaces is a key question that has yet to be answered. Early Cambrian reef systems witnessed the rise and fall of the earliest known cryptic sessile metazoans. Subsequent middle Cambrian to Early Ordovician microbial-dwelling reefs were generally devoid of hard facial building metazoans, as well as of cryptic reef facies. The Early Ordovician microbial-cryptic sponge patch reefs of Korea represent one of the oldest in situ cryptic sponge-bearing cryptic communities exploring inhabited skeletal environments. Less than half of these small meter to centimeter-scale crypts contain low-diversity sessile cryptic assemblages of spiculate sponges and micro-biota. The cryptic sponges that attach to the wall of the cavities or to top of internal skeletal fabrics, leaving the remainder of the cavity unoccupied, indicating the existence of a cryptic fauna with opportunistic benthic members of the epibenthic community. This resulted in the extension of the open surface community into the crypts far in advance of the previously known sessile metazoan adaptation to a cryptic space by an opportunistic member of the epibenthic community. This supports the hypothesis of the Early Ordovician microbial-cryptic sponge patch reefs of Korea as the first direct evidence explaining initial metazoan adaptation into crypts (Zhuravlev and Wood, 1995).

4. Characteristics of Crypts and Cryptic Communities

A) Photograph of three meter-scale Dumugol patch reefs intercalated with intraclastic packstone to grainstone and bioturbated mudstone to wackestone. B) Schematic reconstruction of the Early Ordovician microbial-cryptic sponge patch reefs of Korea as the first direct evidence explaining initial metazoan adaptation into crypts (Zhuravlev and Wood, 1995).

5. Discussion and Conclusions

- Extension of open surface communities into crypto-skeletal space