

The Yeongwol Graptolite Fauna : Biostratigraphy and Biogeographic affinities

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ABSTRACT

Early Ordovician (Late Tremadoc) graptolites are procured from the nine sections of the Yeongwol area, Korea: the Dojang-gol, Ugga-gol, Karae-jae, Ppelchi-gol, Dae-gol, Myungjeon, Namaeri, Dumok, Namkyo Sections, which contain the boundary between the Mungok and Yeonghung Formations. The boundary between the Mungok and Yeongheung Formations collectively reveals the ribbon rock, marlstone to shale, and grainstone to packstone facies of the Mungok Formation, and the thin laminated lime mudstone, bioturbated limestone, and wackestone to grainstone facies of the Yeongheung Formation.

The graptolites from these sections comprise twenty-three species of ten genera: *Aspidograptus implicatus* (Hopkinson 1875), *Aspidograptus lotolatzensis* (Mu 1955), *Aspidograptus* (?) *minor* Bulman 1934, *Callograptus* cf. *hopkinsoni* Bulman, 1934, *Callograptus radiatus* Hopkinson 1875, *Callograptus* cf. *catenoides* (Lin 1992), *Adelograptus* cf. *tenellus* (Linnarsson 1871), *Adelograptus psigraptoides* sp. nov. *Aorograptus victoriae* (Hall 1899), *Araneograptus macgillivrayi*, *Kiaerograptus* cf. *bulmani* (Thomas 1973), *Kiaerograptus* cf. *hengshanensis* Lin 1981, *Kiaerograptus kiaeri*, *Kiaerograptus kutchini* Jackson and Lenz 2003, *Kiaerograptus* cf. *pritchardi* (Hall 1899), *Kiaerograptus taylori* (Hall 1899), *Psigraptus jacksoni* Rickards and Stait 1984, *Clonograptus aureus* Jackson 1973, *Clonograptus* cf. *rigidus* (Hall 1858), *Clonograptus* cf. *norvegicus* Monsen 1937, *Paradelograptus antiquus* (Hall 1899), *Paradelograptus elongatus* Lindholm 1991 and *Rhabdinopora* sp.

The Early Ordovician graptolite faunas of the Yeongwol Group of the Choseon Supergroup show closest affinity to those of North China from where most of the Korean taxa have been documented, and close relationships with the Australasian and NW

Canadian faunas in sharing a number of graptolite taxa. In South China, South America and NE America, the graptolite faunas show less similarity with Sino-Korean faunas than the Australasian and NW Canadian faunas, in unretaining of biogeographically significant taxa *Psigraptus*. These postulations are supported by the studies on the trilobites and conodonts, which suggested the same ideas.

Adelograptus psigraptoides has strongly reclined rhabdosome, which is unusual feature in the genus *Adelograptus* showing horizontal to declined rhabdosome. The species of the juvenile development shows proximally meta-thecal isolation presumably reflecting the rhabdosomal strong reclination as the genus *Psigraptus*. Except for the above, *A. psigraptoides* still retains the adelograptids' characteristics including multiramous, somewhat lax and flexuous rhabdosome, cortical overgrowth of proximal part of stipes in gerontic specimens. And so it is possible to erect *A. psigraptoides* tentatively as a transitional form between *Adelograptus* cf. *tenellus* and *P. jacksoni*. The tendencies of from the adelograptids to the psigraptids are condensed as the reclination and the stipe-exclusion.

Key words : graptolite, Ordovician, Mungok Formation, biogeography, Yeongwol