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## The youngest chemosynthetic fossil assemblage (0.57Ma) from Pleistocene Kasamori Formation of the Kazusa Group at Kousek

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We discovered a chemosynthetic fossil assemblage at Kouseki, Mobara City, Chiba Prefecture where the Pleistocene Kasamori Formation that is the uppermost stratum of the Kazusa Group, a Plio-Pleistocene forearc basin fill, crops out. The Kasamori Formation, 300m to 230m in thickness, consists mostly of mudstones and sandy mudstones (Tokuhashi and Endo, 1983). The chemosynthetic species of the assemblage consists exclusively of a lucinid bivalve *Lucinoma aokii* (Hirayama, 1958). Although this bivalve is an extinct species, it is considered to be a chemoautotrophic bivalve, because observed living lucinids at least harbor sulfur-oxidizing bacteria without any exception (Dame, 1996; Sibuet and Olu, 1998).

In the study area, the formation yields the tuff beds: Ks10, Ks11, Ks11.5B, and Ks12 in descending order. Among them, Ks11 had been dated in 0.57 plus or minus 0.17Ma (Tokuhashi and Endo, 1983). The assemblage occurs in the horizon between Ks11 and Ks10 where tuffaceous mudstones and sandy mudstones are greatly bioturbated. The many shells of *Lucinoma aokii* are preserved in articulated conditions with a position upward dorsally, indicating their life position. Authigenic carbonates are developed sporadically or aggregately among the lucinid shells and are composed of MG-calcite, dolomite, and a minor amount of calcite. These carbonates are greatly depleted in <sup>13</sup>C ( $d^{13}C = -51.2$  to  $-34.1$  per mill), clearly indicating that the assemblage was depended on a methane seepage.

This is the youngest chemosynthetic assemblage in the fossil records. The youngest fossil chemosynthetic assemblage known previously occurs in the Kakinokidai Formation (about 0.70Ma: Majima et al., 2005) that consists of the middle part of the Kazusa Group.

Keywords: Mobara City, Chiba Prefecture, Kamori Formation, lucinid, carbonates