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The trophic role of chaetognaths (*Sagitta crassa* and *S. nagae*) in the pelagic ecosystem of the Yellow Sea using the gut contents and fatty acid trophic markers

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In the Yellow Sea, the occurrence of chaetognaths with a high abundance could significantly affect the structure and function of the planktonic ecosystem. However, a few studies have been conducted to understand their feeding ecology. We analyzed the gut contents (microscopic and DNA analysis) and fatty acid trophic markers (FATMs) of the most predominant chaetognath species, *Sagitta crassa* and *S. nagae* in the Yellow Sea in April, August 2013 and August 2014 from the Yellow Sea to understand their trophic role. Gut contents of the two species revealed by microscopic and DNA analysis indicated that copepods (*Calanus sinicus*, *Oithona* spp., and *Acartia* spp.) were the major components (> 70% of gut contents) of the diets with a minor appearance of krills (*Euphausia pacifica*) and cladoceran. No significant changes of gut contents of the chaetognaths were detected between species and season. Also, the detection of copepod FATMs, such as 20:1(n-9), 22:1(n-11), in the chaetognaths was consistant with the result of gut content analysis. These results suggest that the chaetognaths, *S. crassa* and *S. nagae*, are carnivores and mainly feed on copepods in the Yellow Sea. If so, they may play a key roles not only governing the community structure of micro- and meso-zooplankton (via top-down forcing) but also affecting the survival and recruitment of planktivorous fishes through competing the same food source or providing additional high-quality food source in the Yellow Sea.

Key words : Chaetognath, Sagitta crassa, Sagitta nagae, Diet, Gut content, Fatty acid trophic markers, Yellow Sea.

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