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**Target And Non-Target Analysis For Multi-Residue Substances In
Aquaculture Products Using LC-HRMS**

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Abstract

The aim of study was to optimize an QuEChERS analytical method for simultaneous determination of organic substances accumulated in aquaculture products. The QuEChERS extracts were measured using LC-HRMS. The target substances include 32 pesticides and 20 pharmaceuticals which have not been regulated for the products in Korea. The method was validated according to CODEX guideline (CAC/GL 71-2009). LOD and LOQ for all matrices ranged from 0.1 to 2 $\mu\text{g}/\text{kg}$ and from 0.5 to 5 $\mu\text{g}/\text{kg}$, respectively. Intra-day ($n = 5$) and inter-day ($n = 9$) accuracy and precision were evaluated with the guideline. The validated method was applied to the products ($n = 303$). As a result, 14 pesticides and 8 pharmaceuticals were quantified. Fluxapyroxad, a fungicide frequently detected in domestic surface waters, was found with relatively higher concentration in 17 out of 23 species. It proves that a hydrophobic inland contaminant can be accumulated in the aquaculture products.

Keywords: *Aquaculture products; QuEChERS; Pharmaceutical; Pesticide; LC-HRMS*