

模擬残留試料を用いた水産物中抗菌性物質の加工係数評価

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Evaluation of the processing factors of antibacterial substances in seafood using artificial residual samples

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Abstract

In the case of antibacterial substances (ASs) detected over the uniform limit (0.01 ppm) in processed foods, the maximum residue limits of ASs in ingredients should be verified. However, it would be impossible to obtain ingredients from the same lot as processed in most cases. Thus, the processing factors (PFs: the ratio of the AS concentrations after the process to those before processing) would be important to estimate the concentration of ASs in ingredients. In this study, the PFs of eight ASs in seafood (sea bream) were estimated using artificial residual samples, which were prepared by injection of eight ASs into seafood and standing at 4°C overnight. The PFs of eight ASs were estimated by the concentration of ASs in the artificial residual samples before and after the processing (boiling and frying). The concentration of ASs with lower octanol/water partition coefficient ($\log P_{ow}$) (hydrophilic ASs) more rapidly declined during the boiling process than those of ASs with higher $\log P_{ow}$ (lipophilic ASs). On the contrary to that, the concentration of ASs with higher $\log P_{ow}$ rapidly declined during the frying process than those of ASs with lower $\log P_{ow}$. The applicability of the PFs in the artificial residual sample was examined by comparison of the concentration of oxytetracycline (OTC) residue in the actual residual sample (yellow tail) before and after the processing. The PFs of OTC in the artificial residual sample could successfully correspond to the PFs of OTC in the actual residual samples. The PFs determined by artificial residual samples could be useful for evaluating the ASs concentration in ingredients from those of processed foods.

Keywords : 模擬残留試料、抗菌性物質、残留基準、加工係数、オクタノール/水分分配係数 ($\log P_{ow}$)artificial residual sample, antibacterial substance, maximum residue limits, processing factor, octanol-water partition coefficient ($\log P_{ow}$)

I 緒言

養殖魚の感染症治療等の目的で、抗菌性物質（抗生物質および合成抗菌剤）が投与されている¹⁾。抗菌性物質が残留した食品を摂取した場合、薬剤アレルギー等の健康危害が懸念されることから、食品衛生法のポジティブリスト制度に基づく残留規制により安全性確保が図られ

ている²⁾。しかし、自身魚フライ等の魚介加工食品において抗菌性物質の検出事例があり、継続してモニタリング検査を行う必要がある^{*1)}。また、加工食品の輸入量増加に伴い、加工食品を対象とした残留抗菌性物質検査の重要性が高まっている。

ポジティブリスト制度において、残留基準の設定されていない加工食品における農薬等の基準は原則として一

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“http://www.nihs.go.jp/hse/food-info/chemical/pest_imp-fd/index.html” (2022年10月20日閲覧)