Study on sorption of volatile organic compounds (VOCs) to frozen foods in home freezer
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Abstract
Recently, consumers have a heightened awareness of food safety; moreover, complaints regarding off-flavor are also increasing. There are various causes of off-flavor in frozen food, but in our experience there have been repeated cases in which p-DCB detected in residential environments and styrene detected in refrigerators have been detected in food that has generated complaints of off-flavor. Therefore, we consider that these compounds might pertain to off-flavor in frozen food products. Also, testing has been done on the migration of volatile organic compounds (VOCs) to food at room temperature up to now. On the other hand, there is no knowledge regarding frozen food. In this study we investigated VOCs and monitored the amount of migration regarding p-DCB and styrene in home freezers for an extended period. The results showed that p-DCB and styrene have existed in all of the home freezers examined, and both substances have migrated to frozen food. For this reason, it is possible that both of these substances are indicators of lingering odors when keeping food refrigerated. Therefore, it was shown that the amount of migration varies according to the type of food and how packages of food are resales once opened. These observations indicate that frozen food whose packages were opened has a risk of lingering odors the same as food stored in other temperature zones does.

Keywords: 揮発性有機化合物, p-ジクロロベンゼン, 冷凍食品, 移り香, におい成分記憶フィルム
volatile organic compounds, p-dichlorobenzene, frozen food, lingering odor, off-flavor substance storage film