Monitoring results for the RRS, RRS2 and LLS from Kinugoshi tofu, Momen tofu, Yaki tofu and Kanten tofu distributed in the Matsumoto-City area

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Abstract

We previously reported the rate of Kinugoshi tofu containing detectable genetically modified (GM) soybean (RRS) among commercially available products in the Matsumoto City area by detecting the RRS-specific sequence. Since Kinugoshi tofu was the only sample analyzed, and RRS was only detectable using the genetic techniques available at that time, we evaluated the rate of GM soybeans using tofu products commercially available in the Matsumoto City area. In the present study, we employed the specific sequences of other GM Soybeans (RRS2 and LLS) to detect GM soybeans using real-time PCR. We analyzed 163 samples of Kinugoshi tofu, 64 of Momen tofu, 4 of Grilled tofu, and 1 of Kanten tofu available in the Matsumoto City area between November 2014 and January 2016. Among these samples, 14 of Kinugoshi tofu and 1 of Momen tofu were positive for RRS, while 7 of Kinugoshi tofu and 3 of Momen tofu were positive for RRS2. There were no positive samples for LLS. The present results showed that among the GM soybeans included in tofu in the current market in Japan, RRS was dominant. LLS was less common than RRS and RRS2, which are Roundup-herbicide resistant GM soybeans. These results may reflect the cultivated amounts of the GM soybeans in USA, Canada, and Brazil because these countries are the major soybean trading partners of Japan.

Keywords: 遺伝子組換えダイズ、豆腐、混入状況調査
genetically modified soybean, tofu, monitoring results

I 緒言

遺伝子組換えとは、生物の細胞から特定の遺伝子をとり出し、他の生物の細胞に組み込むことにより、除草剤や病害虫耐性などの有用な性質を付与させる事である。日本では、遺伝子組換え農作物とその加工品については食品表示法の定める品質表示基準に基づき、遺伝子が組換えられた加工品については「遺伝子組換え食品」表示が、生産、流通、加工の段階で特に遺伝子組換え農作物を分別していない場合も「遺伝子組換え食品」表示が義務付けられている。

また、非遺伝子組換え作物が分別生産流通管理（IPハンドリング）をされたものとその加工品については、任意で「遺伝子組換えでないものを分別」「遺伝子組換えでない」などの表示が可能となっている。日本における2015年度のダイズ全体の自給率（概算値）は7%、油糧用を除いた食用に限定しても25%と低い*1。2016年度の日本のダイズの輸入相関国は、輸入量の多い順にアメリカ合衆国が2,238,539tで全輸入量の71.5%、ブラジル524,307tで16.7%、カナダ339,885tで10.9%とこの3か国で99.1%を占めている*2。2016年度のアメリカ合衆国にお