

Evaluation of Cell Based Anti-oxidation Assay of Functional Components Derived from Domestic Major Potato Varieties

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Potatoes were first introduced outside the Andes region four centuries ago, and have become an integral part of much of the world's food. Potatoes were first introduced into Europe in the 16th century and Korea in the early 19th century. Potatoes have a short growing season, high production per unit area, relatively strong environmental adaptability, and are cultivated in more than 130 countries around the world. It is the world's fourth-largest crop, following rice, wheat, bean and maize. In the nutritional aspects, potatoes contain abundant vitamins and minerals, as well as an assortment of phytochemicals such as carotenoids and natural phenols. Due to the high content of potato functional compounds, it has known that potatoes are effective in the prevention of various human diseases. In particular, the potato contains a large amount of polar compounds, including the saponin in the polar compounds, and the physiological activity of the saponins, such as immunity enhancement, antioxidant and anti-inflammatory is known. In this study, the antioxidative activity of polar compounds from five potatoes was examined by cell based anti-oxidation assay. The smallest amount of ROS(Reactive oxygen species) was generated when the compound was derived from 'Haryung' and 'hongyoung' and strong SOD(Superoxide dismutase) activity was observed in 'Sumi' and 'Jayoung'. The results of this study reveal the antioxidative effect of polar compounds extracted from various kind of potatoes, which will enable the acquisition of new bioactive candidates and the establishment of new profit generation models for farmers.

Key words: Antioxidative activity, Polar compounds, Potatoes, ROS, SOD

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