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Genetically engineered resveratrol enriched rice, a best dietary solution for the treatment of aging, neuroinflammation and neurodegeneration

Lalita Subedi and **Sun Yeou Kim**
Gachon University, Republic of Korea

Resveratrol has several biological activities against various disease conditions such as, photoaging, inflammation, obesity, metabolic disorders, vascular diseases, viral infections and cancer too. On a negative note, resveratrol has a significant cytotoxicity to the normal cells even at the effective concentration for disease. This limitation makes a shade on the brilliant potency of the resveratrol against various disease. During the search of generating more safe and effective dietary consumption of resveratrol, we generated a transgenic rice plant that enriched resveratrol in their grains so called resveratrol rice (RR). Though the normal rice we select to make transgenic also has a potency to fight against various conditions such as UVB induced skin aging, LPS (Lipopolysaccharide) induced neuroinflammation and activated microglia mediated neurodegeneration however, RR has significantly higher potential then normal rice and almost similar potency to that of pure resveratrol and more importantly without the cytotoxicity to normal cells as resveratrol possess. ROS mediated skin aging (specially through MMP's, apoptosis and inflammaging), LPS mediated neuroinflammation (through MAPK-NF-kB-cytokines) and activated microglia and other toxicant induced neurodegeneration was dramatically reversed with the treatment of RR with out and cytotoxicity and unwanted effects to normal cells. These results totally support the fact that RR will be a best alternative for safe and effective treatment of variety of human ailments specially inflammation, aging and related disorders. Aging and aging-related neuronal disorders are most annoying conditions for personal health as well as the beauty of individuals, so food component having the potential against both of these conditions will be the most interesting topic for the further research.

subedilali@gmail.com

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