

Enhancing Antioxidant Activities and Anti-Aging Effect of Rice Stem Cell Extracts by Plasma Treatment

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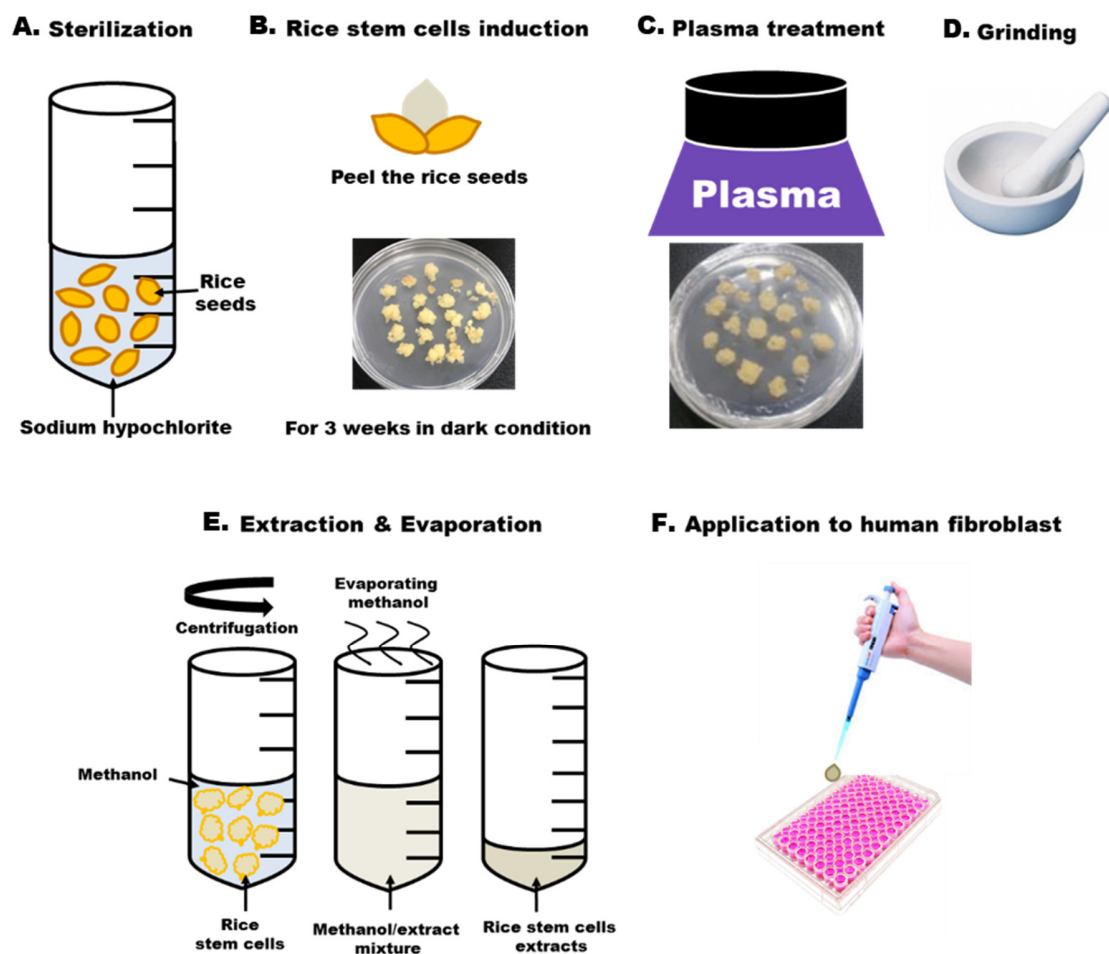
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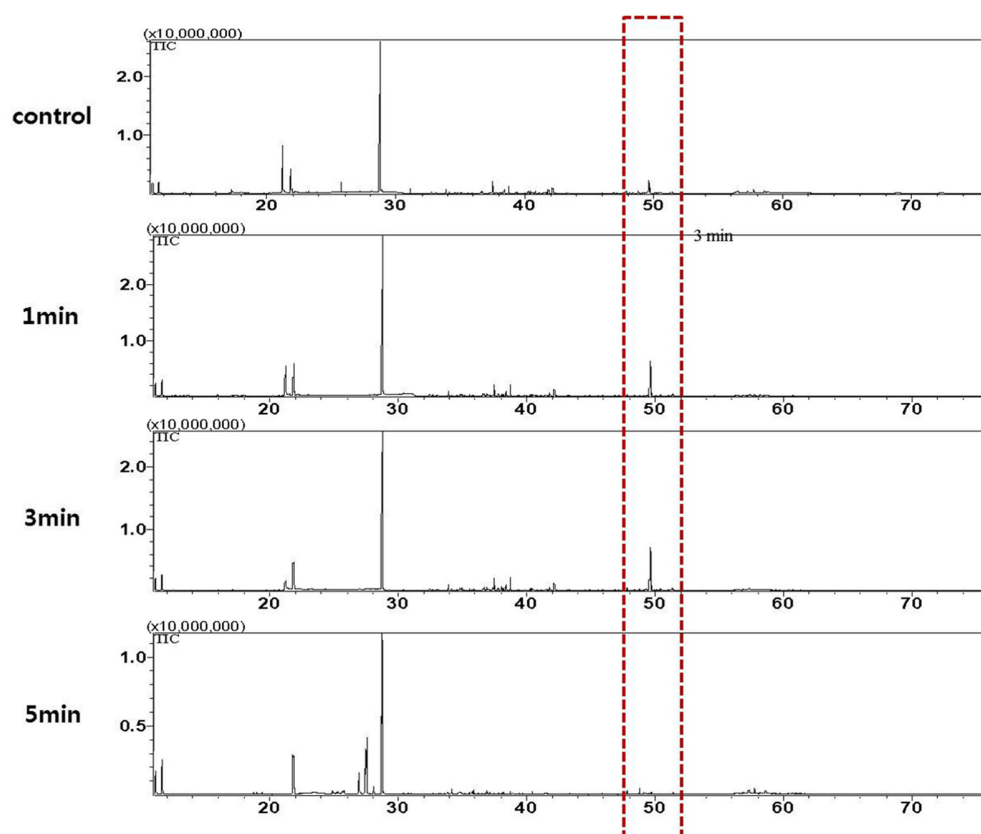
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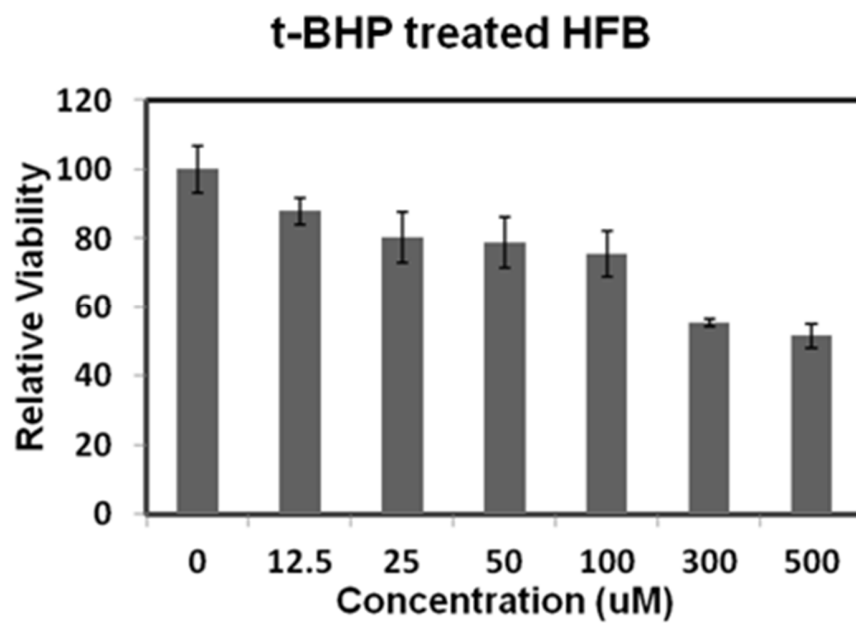


Supplementary Figure S1. Experimental flow chart. Rice Stem cells were prepared from embryos of rice seeds, treated with plasma, and extracted using methanol solvent. Rice stem cell extracts (RSCE) thus prepared was reacted with HFB and applied to various analytical methods.

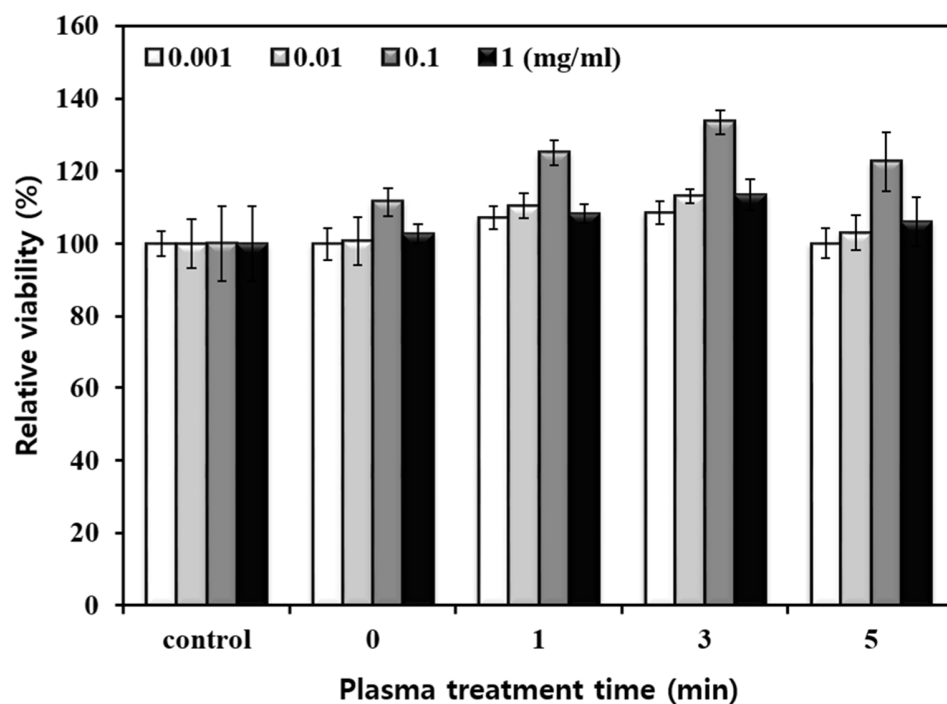


Supplementary Figure S2. Individual GC-MS total ion chromatogram (TIC) of samples in full scale. GC-MS chromatogram of RSCE as a function of plasma treatment time. When the retention times (RT) of untreated RSCE and plasma-treated RSCE were compared, five types of candidate metabolites were detected as flows, with the highest peak in those RSCE treated with plasma for 3 min. Fructose (RT = 34.805 min), galactopyranoside (RT = 36.690 min), melibiose (RT = 47.830 min), glycoside (RT = 49.325), sucrose (RT = 49.620 min). These candidate metabolites were mainly primary metabolites and showed a slight difference in peak height according to the duration of plasma treatment. Among these candidates,

glycoside and sucrose, which showed the highest peak height during plasma treatment for 3 minutes, are indicated by red boxes.



Supplementary Figure S3. Viability of HFB with t-BHP treatment. HFB cell proliferation was evaluated for various t-BHP concentrations (12.5, 25, 50, 100, 300 and 500 μ M).



Supplementary Figure S4. Viability of HFB with plasma treated RSCE. The plasma treatment time for rice stem cells were 1, 3 and 5 min. Feeding gas for plasma discharge used nitrogen with a flow rate of 1500 sccm. Plasma-treated RSCE were used by concentration (0.001, 0.01, 0.1, and 1 mg/mL). In order to confirm the cell proliferation of plasma-treated RSCE, HFB was pretreated with plasma-treated RSCE at each concentration for 24 hours. The cell viability of HFB at 0.1 mg/mL of RSCE treated with plasma for 3 min was the highest.