Neurobehavioral Effects of Fermented Rice Bran Extract in Zebrafish Larvae model

**Supplementary Materials**

**Neurobehavioral Effects of Fermented Rice Bran Extract in Zebrafish Larvae model**

**Jin Sil Chae1,2,†, Seong Soon Kim1,†, Kyu-Seok Hwang1,†, Hyemin Kan1, Jung Yoon Yang1, Byunghoi Lee1, Dae-Seop Shin1, Byounghee Park3, and Myung Ae Bae1,2,\***

1 Bio Platform Technology Research Center, Korea Research Institute of Chemical Technology, Daejeon 34114, Republic of Korea

2 Department of Medicinal Chemistry and Pharmacology, University of Science and Technology, Daejeon 34113, Republic of Korea

3 R&D Center, Raphagen Inc., Seoul 07286, Republic of Korea

\* Correspondence: mbae@krict.re.kr (M.A. B.)

† These authors contributed equally on this work

**Fig. S1. Schematic illustrating the purification of RBF30**

Fermented rice bran

mixed with 5 kinds of strains

Purification

(30.50% EtOH fraction)

Concentration

Slurry

Filtration

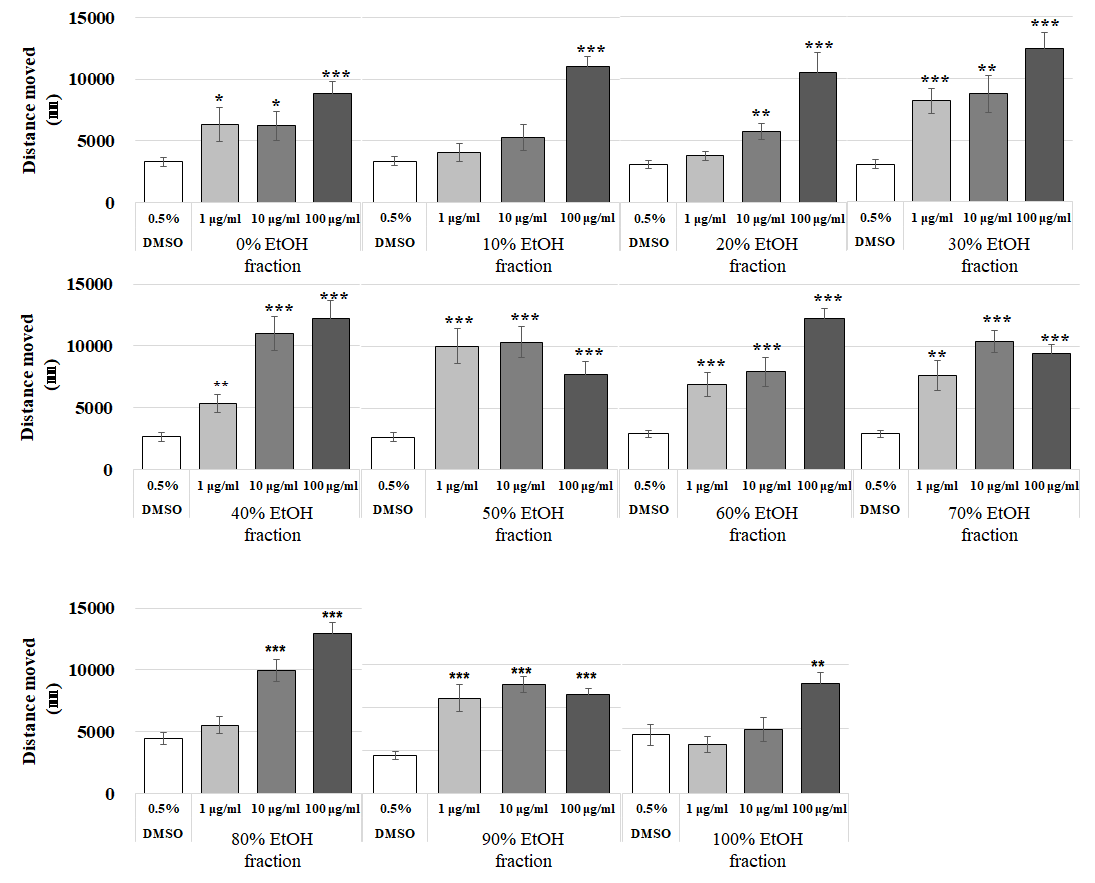
Drying

Milling

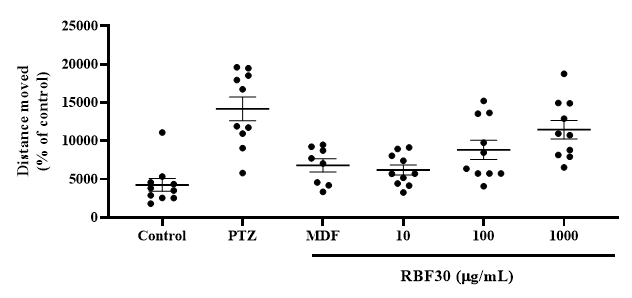
3 times

**RBF30**

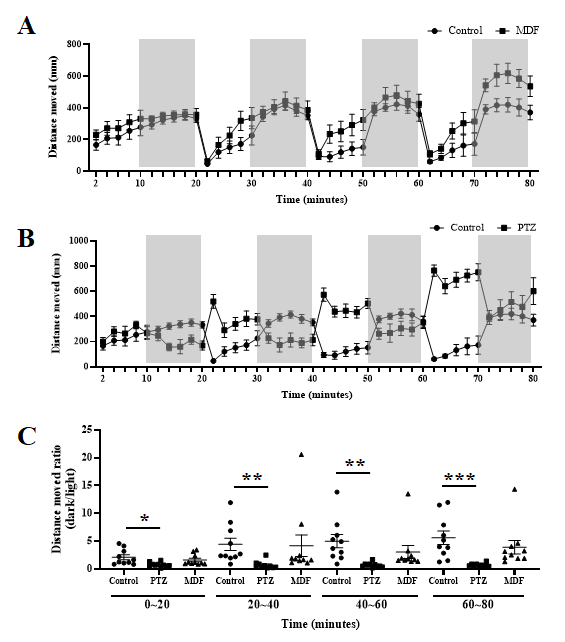
**Fig. S2. Behavioral effects of ethanol (EtOH) fractions 0 to 100 % (v/v) of various concentrations of RBF30 in 5 dpf zebrafish larvae. Data was represented as means ± standard error of the mean (n=18). Significance was set at \*\*\*p ≤ 0.001 versus control and #p ≤ 0.05 between RBF30 and 0.5% DMSO control.**

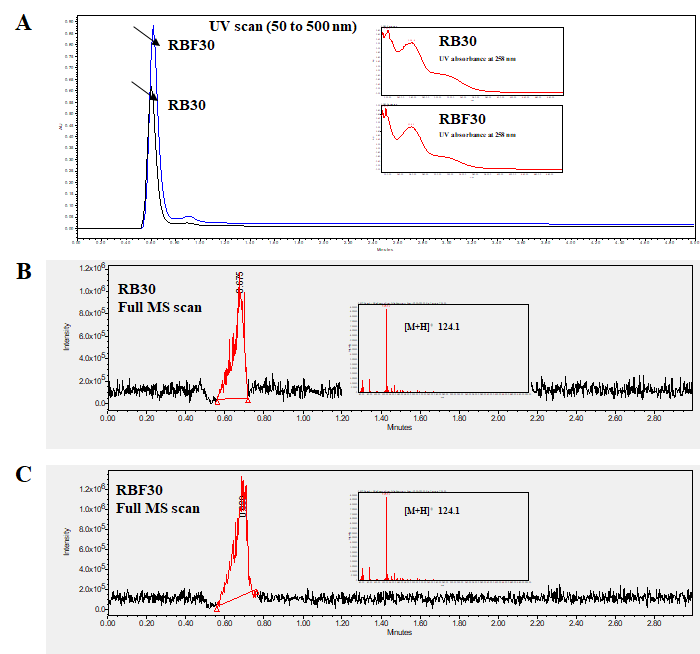


**Fig. S3. Larval locomotor activity in 5 dpf zebrafish larvae. Distance moved (percentage of control) of control, pentylenetetrazole (PTZ), modafinil (MDF), and RBF30-treated larvae. Data was represented as means ± standard error of the mean (n=18). Significance was set at \*\*p ≤ 0.01 and \*\*\*p ≤ 0.001 versus control.**



**Fig. S4. Larval locomotor activity in alternating periods of light and dark after administration of MDF and PTZ. (A and B) Total distance moved under alternating light/dark cycles in each 2-minute period. (C) Distance moved (percentage of control) of control and, MDF or PTZ-treated larvae in each 10-minute light–dark period. Data was represented as means ± standard error of the mean (n=8). Significance was set at \*\*p ≤ 0.01 and \*\*\*p ≤ 0.001 versus control.**



**Fig. S5. (A) UV spectrums scan of RB30 and RBF30 at wavelengths from 210 nm to 500 nm. (B and C) Full MS Scan (ESI+) of RB30 and RBF30 at m/z 50 to 500. The integral peak was assumed as a niacin ([M+H]+ 124 ion).**

**Fig. S6. Niacin contents in RB30 and RBF30.**

