

The beneficial effect of the Rosemary and Torreyia nucifera leaf originated from Jeju island on relaxation from resting-state

Eun Kyoung Lee¹, Min Jeong Kim², Ji Young Moon², Jeong Mi Kim², Jin Hee Shin^{2*}

1 P&K Skin Research Center, Seoul, Republic of Korea

2 UCL Co., Ltd., Jeju, Republic of Korea

Introduction:

In cosmetic fields, to clarify the effects of fragrance on the physiological and psychological has been attempted. Fragrance is an integral part of cosmetic products and is often regarded as an major factor for the choice of cosmetics among consumers. With Electroencephalography (EEG)-based emotion recognition, it is possible to measure the modification in the brain activity provoked by smelling fragrances. As reported, the inhaled essential oil make positive psychological effects such as reducing stress and enhancing relaxation and alertness states of human brain function. The psychological change by fragrance exposure are related to the modulation of olfactory nervous system and subsequent shift of the neuronal activity. It is well known that human electroencephalography (EEG) activity is susceptible to alteration during odor stimulation. As previous reports, the molecules absorbed by inhalation, able to cross the blood-brain barrier and interact with receptors in central nervous system. Several lines of evidence demonstrated that cosmetic formulations including natural extracts or natural essential oils induce brain wave change from tactile and olfactory senses. Jeju-island is in only place in the world that has three UNESCO designations and also is the most popular visiting area to the tourists in Korea. Jeju island has a lot of unique natural material as a volcano island. In this study, we provide the relaxing effectiveness of the Rosemary and Torreyia nucifera leaf originated from Jeju-island through EEG assessment. Moreover, we suggest that they would be essential ingredient for fragrance of cosmetics.

Materials & Methods:

Essential oil extract

It was extracted by using water-steam distillation method, which is one of the well-known extraction methods for essential oils. 250g of rosemary and Bija leaves were collected in each region of Jeju island, which were cut to 3cm length. The pulverized rosemary and Bija leaves were put in a distillation machine and the extraction process was performed at a 100°C for about 4 hours to obtain their essential oils. Rosemary essential oil yield in a 0.8~1.0%, and Bija leaf essential oil obtains in a yield of 0.2~0.5%.

Cosmetic product manufacture

Rosemary & Bija ssential oil (Rosmarinus Officinalis Leaf Oil & Torreyia Nucifera Leaf Oil) contains 22.5% of Fragrance oil in Hair serum and shampoo, and 10 % in Body wash and body lotion. And product of hair shampoo and hair serum contains 0.45% of Blending oils(include Rosemary essential oil and Bija essential oil), Body wash has 1.6%, body lotion has 0.5% of Blending oils(include Rosemary & Bija essential oil).

Participants

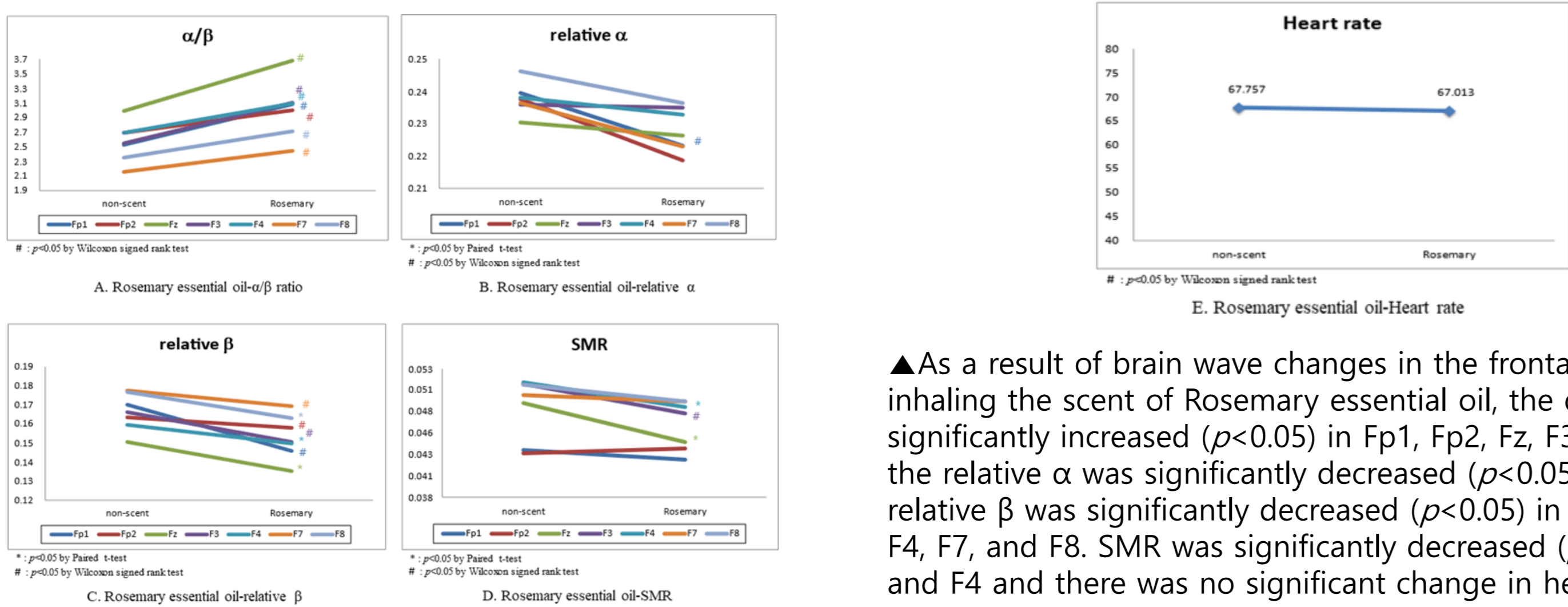
Thirty healthy participants aged from 20 to 30 (mean, 24.5 years), who were screened for excessive nasal congestion, drug use, and neurological disorders prior to participation in the experiment. All participants were informed consent before participation in this study.

Procedure

Experimental room was blocked from outside sound and maintained at 20 – 25°C and relative humidity at 40-60%. Subjects individually entered the climatic room and then they kept closing their eyes, and minimizing movement. Subsequently, an electrode gear was affixed to the head. For each condition, EEG was recorded during rest Participant sat on chair and wearing gear. They kept closing their eyes and minimizing movement during the measurement. EEG was recorded during rest for 3 minutes and administration of the scent for 3 minutes. The presentation order of the scents was counterbalanced for each subject. After measuring each scent, the participants were asked to mark the indicated questionnaire. The room was ventilated during interim time, approximately 2 minutes, between measurements.

Results & Discussion:

Figure 1. Test result of Rosemary essential oil



Results & Discussion:

Figure 2. Test result of Torreyia nucifera leaf essential oil

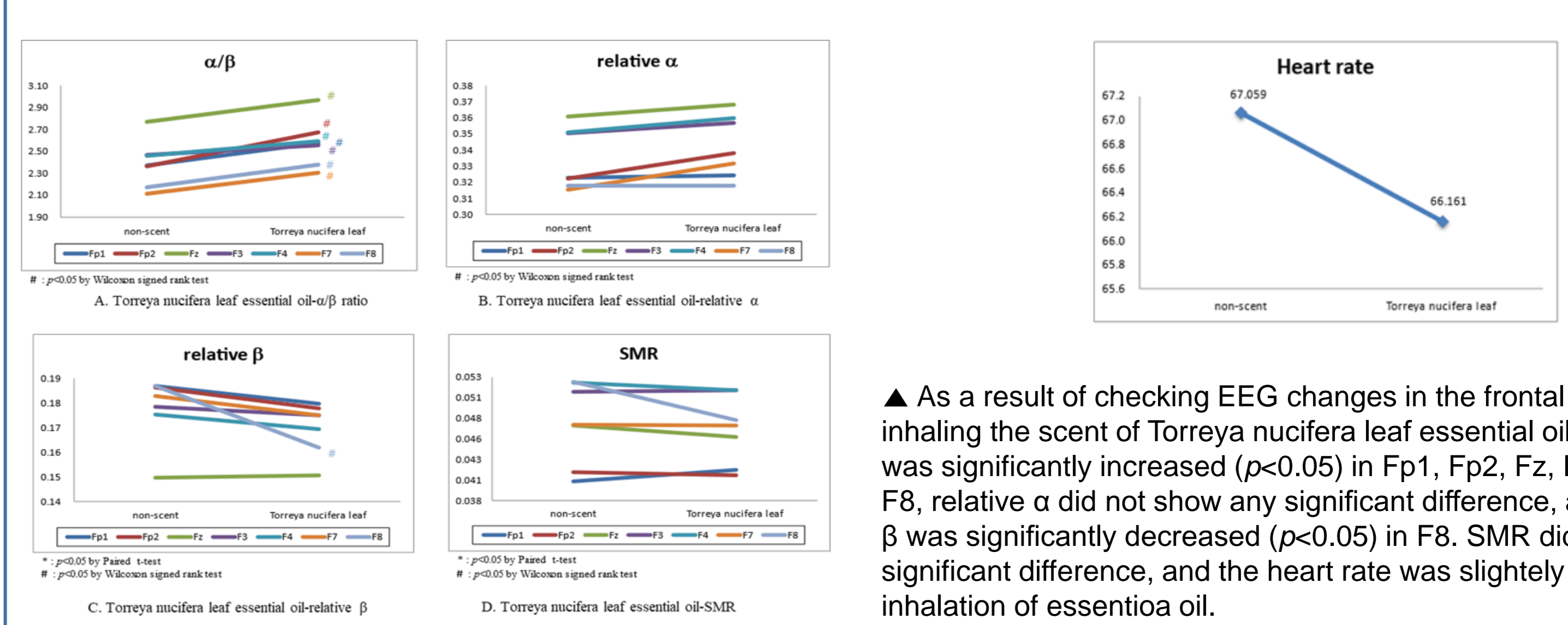


Figure 3. Test result of Rosemary & Torreyia nucifera Calming Body Lotion

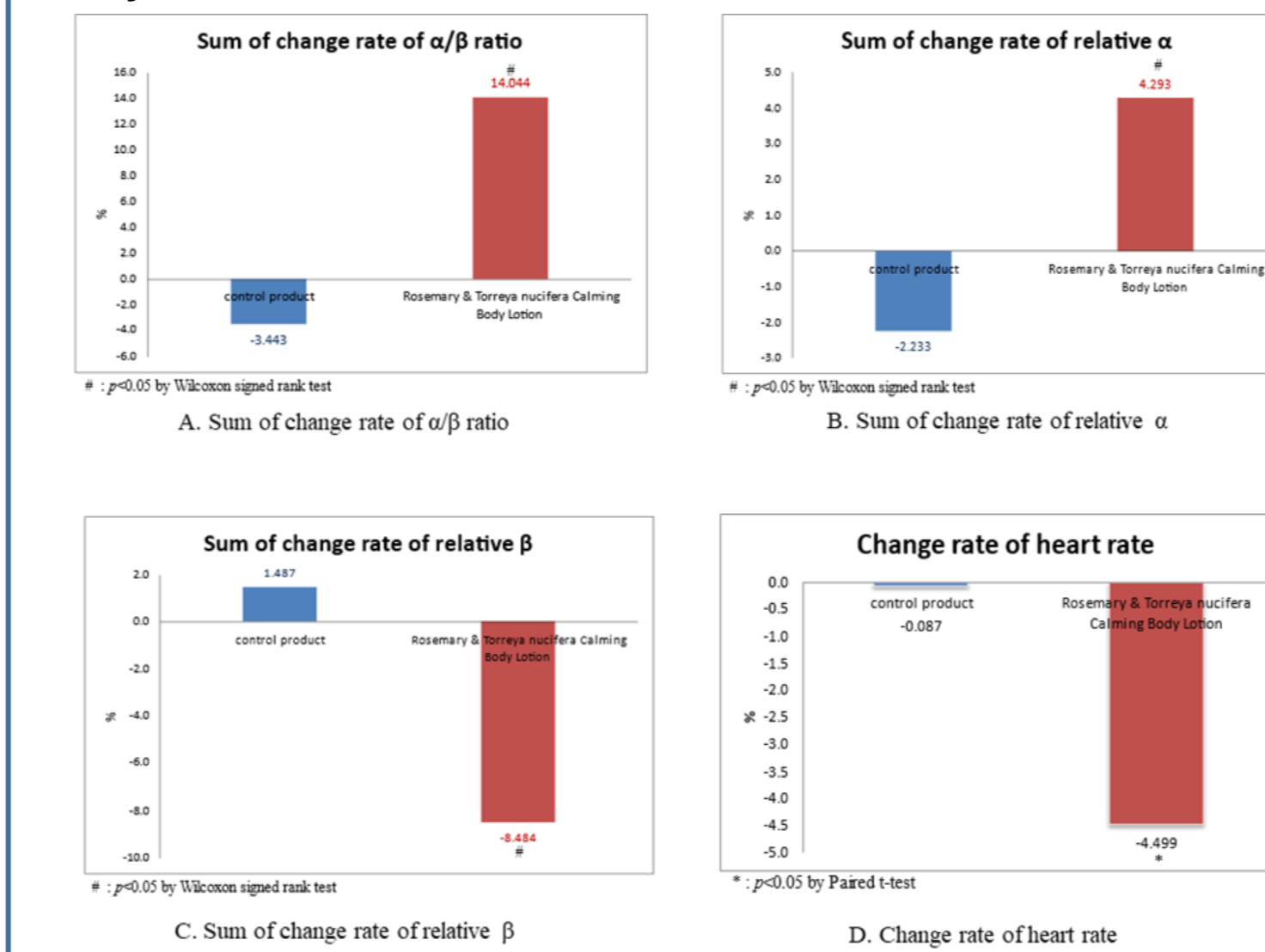


Figure 4. Test result of Rosemary & Torreyia nucifera Balance Hair Shampoo

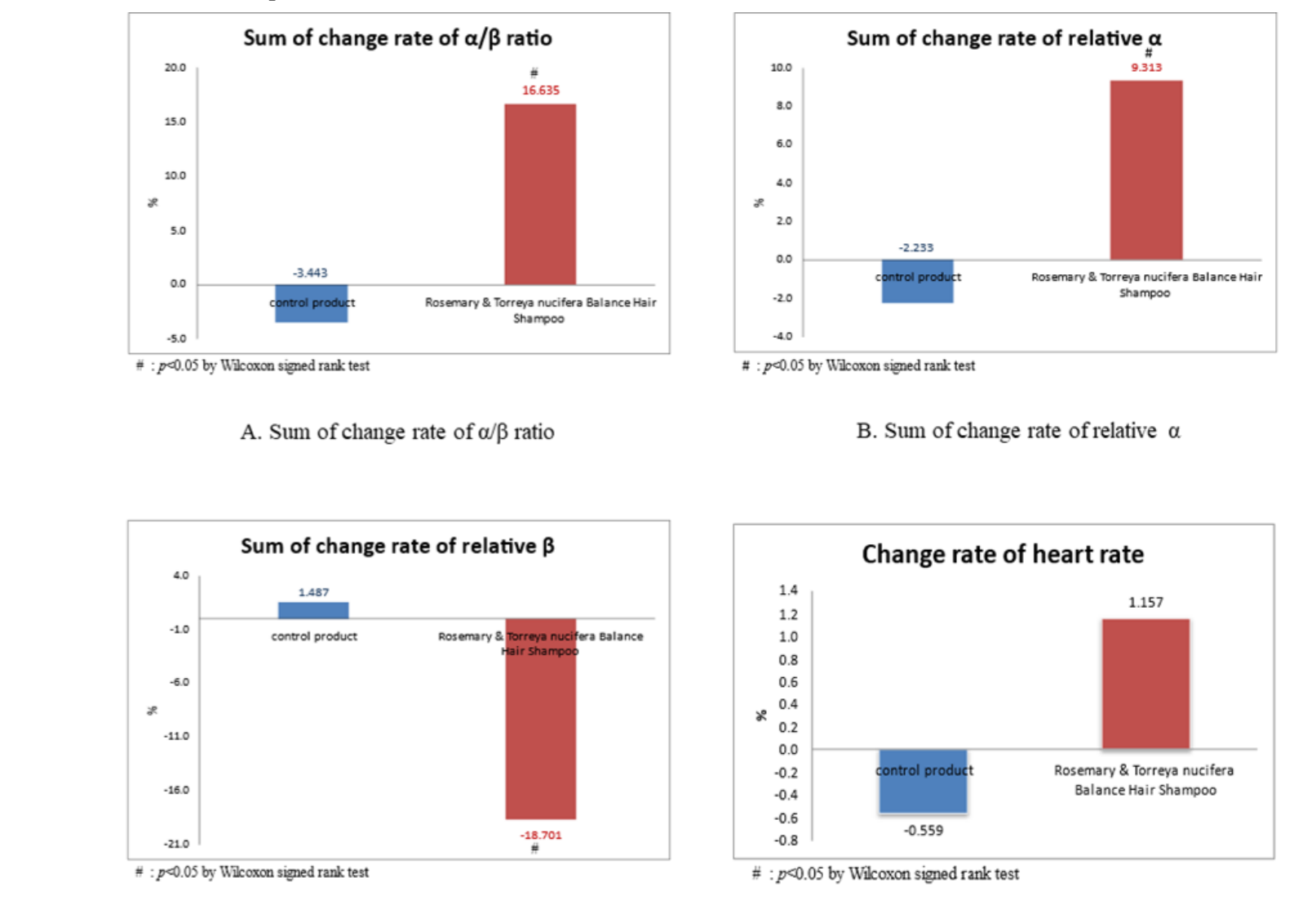


Figure 5. Test result of Rosemary & Torreyia nucifera Balance Hair Serum

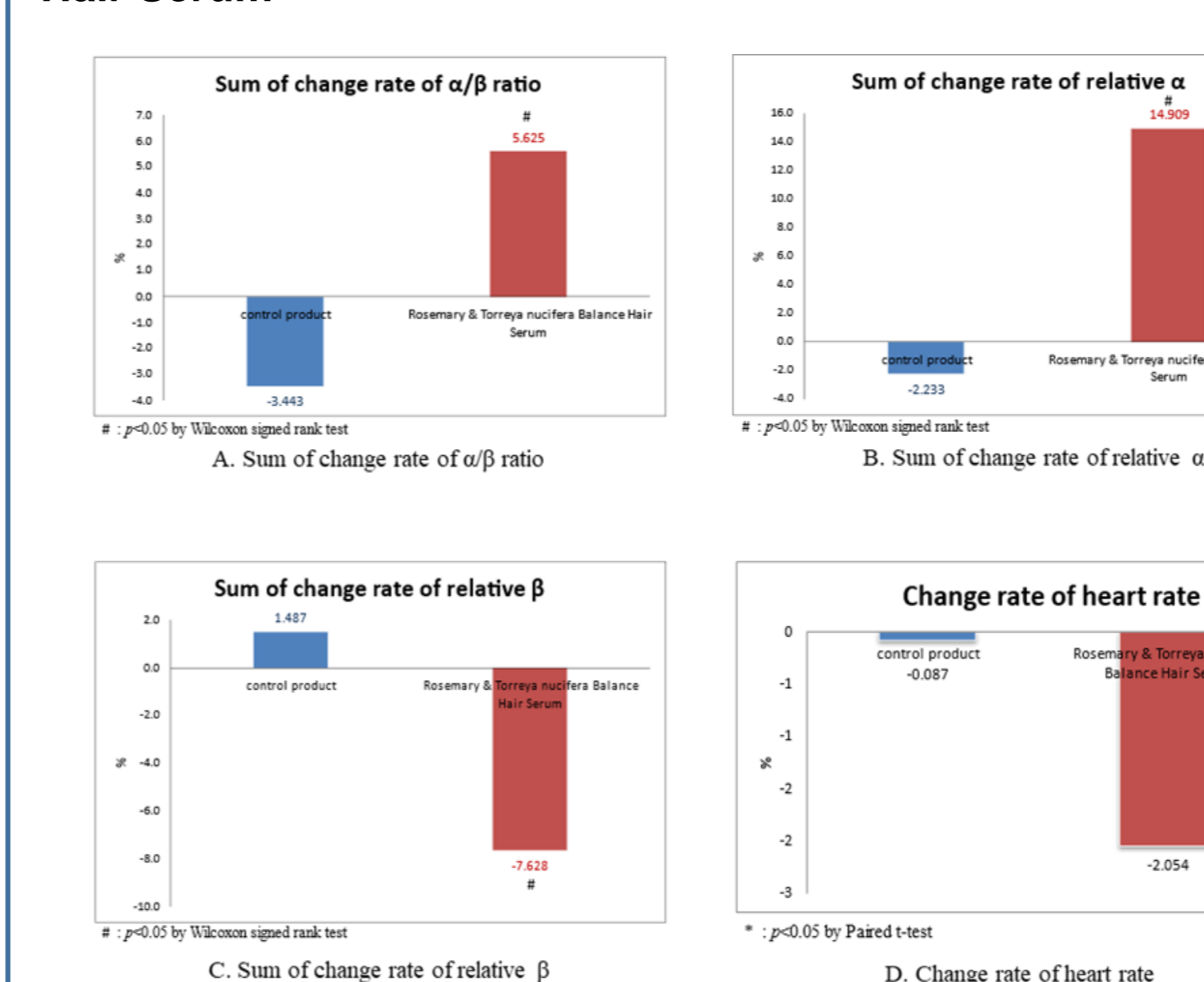
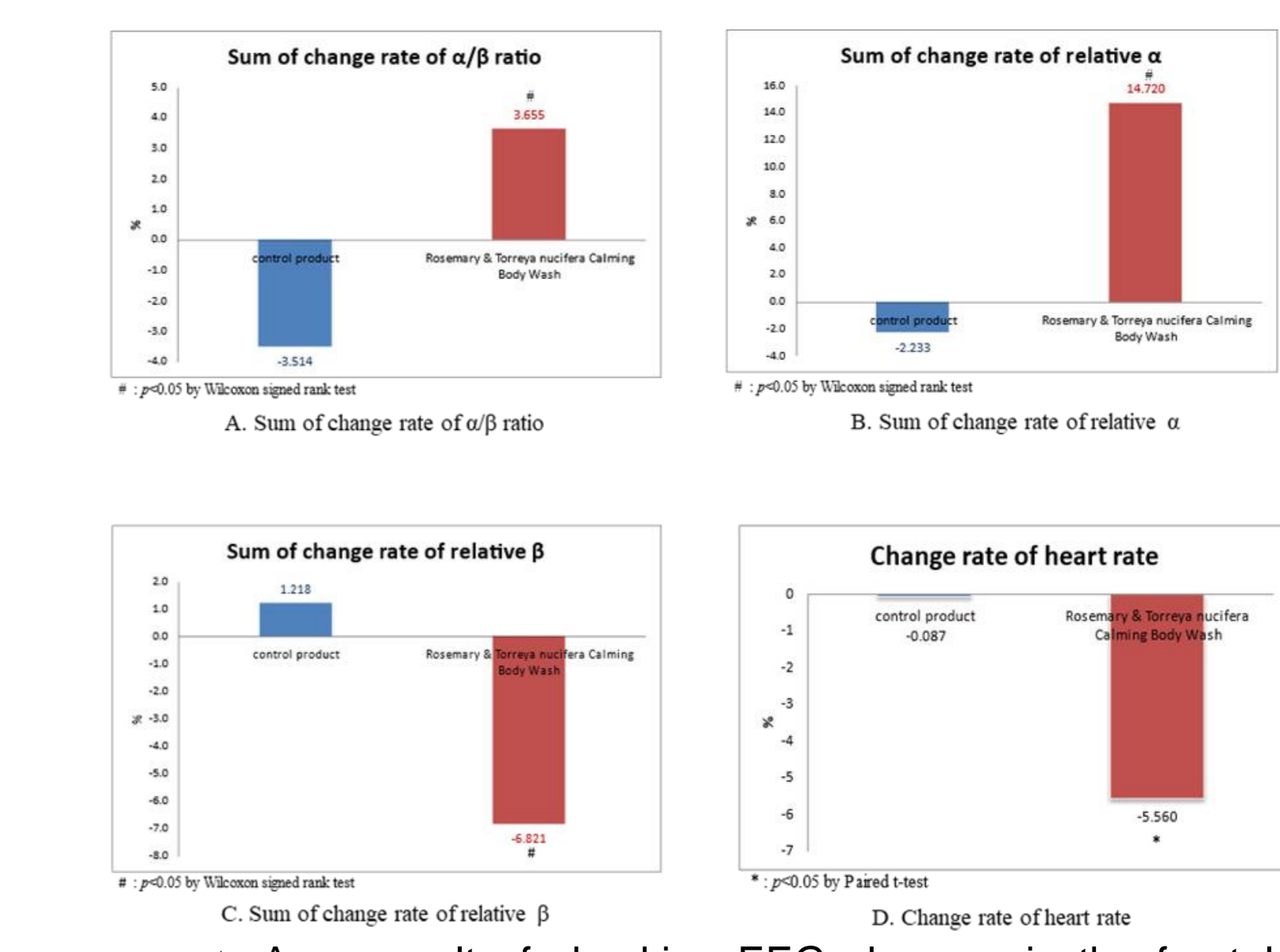


Figure 6. Test result of Rosemary & Torreyia nucifera Calming Body Wash



Conclusions:

The essential oil and cosmetic products revealed brain activity change following fragrance inhalation. Both rosemary essential oil and torreyia nucifera leaf essential oil showed an increase in α/β ratio and a decrease in relative β . And in the cosmetics test results, α/β ratio increased, relative α increased, and relative β decreased compared to the control product. Additionally, the inhaled 'Rosemary & Torreyia nucifera Calming Body Wash' diminished the heart rate in ECG recording. We firstly showed the alternation of the sensorial status by the Rosemary and Torreyia nucifera leaf originated from Jeju-island through brain wave change from those essential oil to cosmetic products. Therefore, we suggest the Rosemary and Torreyia nucifera leaf originated from Jeju-island as fragrance ingredient for cosmetics with relaxing effect.

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