A Study on Physiological Effect of *Prunella vulgaris* Gamisoyosan Development of Functional Cosmetics

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Abstract

The solvent extracts of *Prunella Vulgaris* Gamisoyosan(PVG) were investigated for the activities of antioxidant for cosmetic products. The electron donating ability of all PVG extracts were above 60% at the concentration of 1,000 ug/ml. The ABTS+ radical cation scavenging ability over 80% PVG extraction of ethanol, methanol, acetone at a 1000 ug/ml. The astirngent activity over 40% from PVG extracts of water and acetone at a 1000ug/ml. These results verified that acetone extracts from the PVG have a strong antioxidant activity and can be used as an effective antioxidant source for manufactures and cosmetic stuffs.

Materials & Methods

1. Electron donating ability (EDA)
: measured by Blois MS[1)] method.
2. ABTS$^+$ radical cation scavenging activity
: measured by ABTS+ cation decolorization[2)] assay.
3. Astringent inhibition effect
: measured by Lee JT[3)] method.
4. Superoxide anion radical scavenging activity
: measured by nitroblue tetrazolium(NBT)[4)] mehod.
5. Superoxide dismutase (SOD) - like activity
: measured by Marklund[5)] method.
6. Mushroom tyrosinase inhibition effect
: measured by Yagi [6)] method.

Results

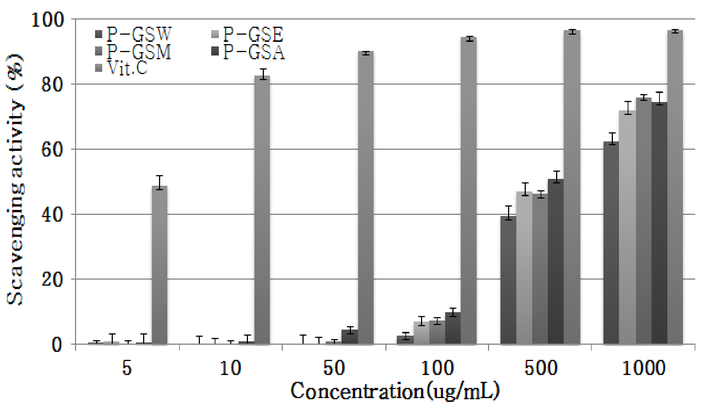

Fig. 1. The Electron donating ability of *Prunella vulgaris* Gamisoyosan extracts.

- P-GSW : *Prunella vulgaris* Gamisoyosan extracted with water.
- P-GSE : *Prunella vulgaris* Gamisoyosan extracted with ethanol.
- P-GSM : *Prunella vulgaris* Gamisoyosan extracted with methanol.
- P-GSA : *Prunella vulgaris* Gamisoyosan extracted with acetone.
- Vit.C : L-ascorbic acid.

Results are means ± S.D. of triplicate data.

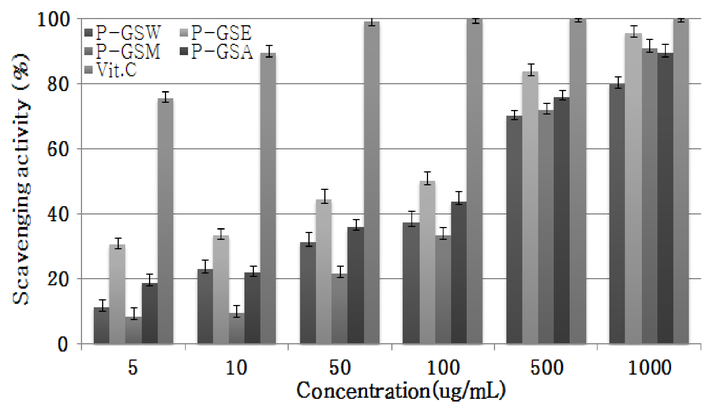

Fig. 2. The ABTS$^+$ radical cation scavenging activity of *Prunella vulgaris* Gamisoyosan extracts.

- P-GSW : *Prunella vulgaris* Gamisoyosan extracted with water.
- P-GSE : *Prunella vulgaris* Gamisoyosan extracted with ethanol.
- P-GSM : *Prunella vulgaris* Gamisoyosan extracted with methanol.
- P-GSA : *Prunella vulgaris* Gamisoyosan extracted with acetone.
- Vit.C : L-ascorbic acid.

Results are means ± S.D. of triplicate data.

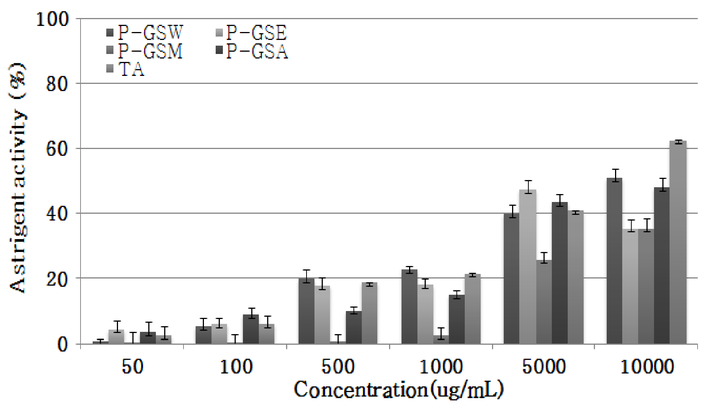

Fig. 3. The astirngent activity of *Prunella vulgaris* Gamisoyosan extracts.

- P-GSW : *Prunella Vulgaris* Gamisoyosan extracted with water.
- P-GSE : *Prunella Vulgaris* Gamisoyosan extracted with ethanol.
- P-GSM : *Prunella Vulgaris* Gamisoyosan extracted with methanol.
- P-GSA : *Prunella Vulgaris* Gamisoyosan extracted with acetone.
- TA : Tannid acid

Results are means ± S.D. of triplicate data.

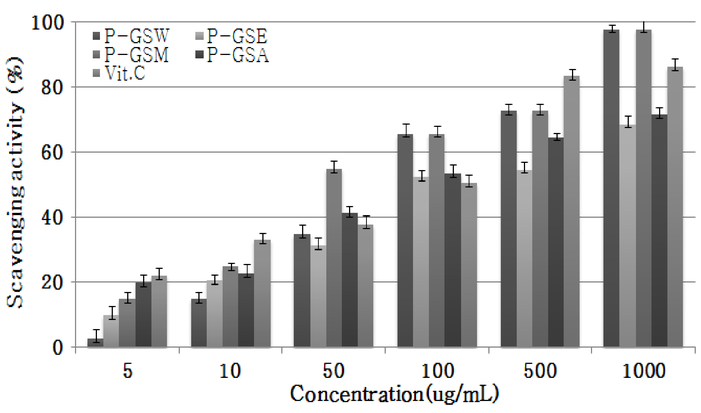

Fig. 4. The superoxide anion radical scavenging activity of *Prunella vulgaris* Gamisoyosan extracts.

- P-GSW : *Prunella vulgaris* Gamisoyosan extracted with water.
- P-GSE : *Prunella vulgaris* Gamisoyosan extracted with ethanol.
- P-GSM : *Prunella vulgaris* Gamisoyosan extracted with methanol.
- P-GSA : *Prunella vulgaris* Gamisoyosan extracted with acetone.
- Vit.C : L-ascorbic acid.

Results are means ± S.D. of triplicate data.

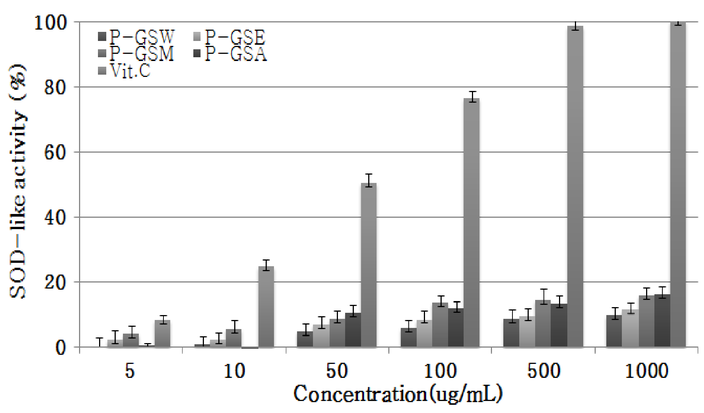

Fig. 5. The SOD - like activity of *Prunella vulgaris* Gamisoyosan extracts.

- P-GSW : *Prunella vulgaris* Gamisoyosan extracted with water.
- P-GSE : *Prunella vulgaris* Gamisoyosan extracted with ethanol.
- P-GSM : *Prunella vulgaris* Gamisoyosan extracted with methanol.
- P-GSA : *Prunella vulgaris* Gamisoyosan extracted with acetone.
- Vit.C : L-ascorbic acid.

Results are means ± S.D. of triplicate data.

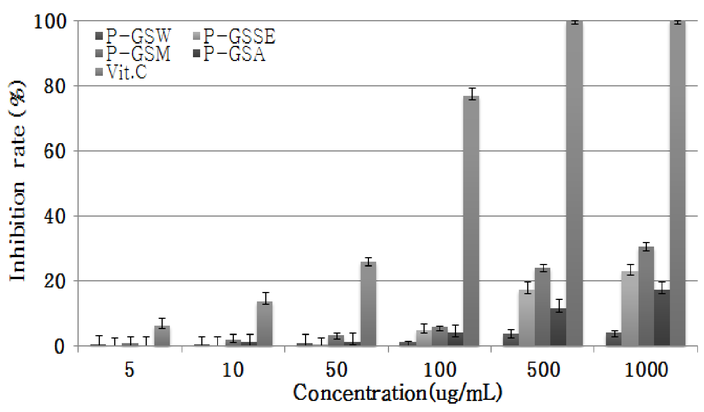

Fig. 6. The Inhibition rate of *Prunella vulgaris* Gamisoyosan extracts on tyrosinase.

- P-GSW : *Prunella Vulgaris* Gamisoyosan extracted with water.
- P-GSE : *Prunella Vulgaris* Gamisoyosan extracted with ethanol.
- P-GSM : *Prunella Vulgaris* Gamisoyosan extracted with methanol.
- P-GSA : *Prunella Vulgaris* Gamisoyosan extracted with acetone.
- Vit.C : L-ascorbic acid.

Results are means ± S.D. of triplicate data.

Conclusion

1. **The antioxidant activities of methanol extracts showed a highest those of hot water extracts, 70% acetone extracts and 70% ethanol extracts. The electron donating ability of the ethanol , acetone and methanol extracts took effect over 70% at 1000ug/ml.**
2. **The ABTS+ radical cation scavenging activity ethanol and methanol extracts took effect over 90% at 1000ug/ml.**
3. **The superoxide anion radical scavenging inhibition effect was water and methanol extract showed 95% at 1000ug/ml.**
4. **Tyrosinase inhibition effect was methanol extracts showed about 29% at 1,000ug/ml , water extracts showed 22.38% at 1000ug/ml.**

Reference

1) Blois MS. : *Nature*., 26, 1199-1200 (1958).

2) Roberta R, Nicoletta P, Anna P, Ananth P, Min Y and Catherine RE, 26(9/19), 1231-1237.

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