Anti-oxidant and DNA protection effects of commercial 
*Echinacea purpurea* products from Taiwan

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*Echinacea* spp. is a popular food supplement in North America and Europe. Commercial products have used widely to treat cold induced by influenza virus and upper respiratory bacterial infection. The immunomodulation and other pharmaceutical effects of *Echinacea* spp., especially *Echinacea purpurea*, also draw researchers’ attentions. The Taichung District Agricultural Research and Extension Station (TDARES), imported seeds from Canada, had planted several species of Echinacea successfully. Taiwan Direct Biotechnology Co., Ltd. cooperated with TDARES and Huang’s organic farm at Hua Lien to produce local commercial Echinacea products e.g. Flothy® *Echinacea* Tonic for baby (EP-B) and *Echinacea* heathy Tonic for adult (EP) etc. The marker compounds of Taiwan cultured Echinacea are comparable with those of North American origin by HPLC analysis. We are invited to evaluate Flothy® Echinacea products’ efficacy and aim to investigate whether Taiwan local cultured *Echinacea purpurea* has potential to replace imported and expensive *Echinacea* products to be widely accepted and useful household food supplement in Taiwan. We used Echinaforce® by A. Vogel (EF), Echinacin® Liquidum (EL) and Echinacin® Saft (ES) by Madaus as positive standards. Using the 2,2’-azino-bis-3-ethylbenzthiazoline-6-sulphonic acid (ABTS) and 1,1-diphenyl-2-picrylhydrazyl (DPPH) assays, we evaluated the free radicals scavenging efficacy. Using ultraviolet light and H$_2$O$_2$ to induced DNA strands breakage, we evaluated the DNA protection effect of *Echinacea* products. DPPH assay reveals that Flothy® EP products tested have obvious scavenging efficacy and are significantly superior to EF, EL and ES. These products have higher scavenging efficacies of ABTS than those of DPPH. Again, Flothy® EP products are better than those of A. Vogel and Madaus. Flothy® EP-B has the best DNA protection efficiency amongst them. We also tested their antibacterial effect and found that Flothy® EP-B and EP have anti-bacterial activity. The successful agriculture products of Taiwan have plentiful commercial benefit and also have potency to be an alternative anti-aging and health-care supplement in further.