

Key words: *Centella asiatica*; motility; dopamine; levodopa; rotenone; zebrafish; pro-BDNF

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Effects of *Angelica sinensis* on longitudinal bone growth rate in adolescent female rats

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Abstract: **OBJECTIVE** To investigate the effect of *A. sinensis* on longitudinal bone growth rate in adolescent female rats. **METHODS** *A. sinensis* was extracted with 30% EtOH for 3 h at 90°C in a reflux apparatus. Female Sprague-Dawley rats (33 d-old) were randomly divided into three groups: control (vehicle), recombinant human growth hormone (rhGH; 20 $\mu\text{g} \cdot \text{kg}^{-1} \cdot \text{d}^{-1}$), and *A. sinensis* (300 $\text{mg} \cdot \text{kg}^{-1} \cdot \text{d}^{-1}$). *A. sinensis* extracts or vehicle was administered orally twice daily for 4 d. Longitudinal bone growth rate in newly synthesized bone was observed using tetracycline labeling (20 $\text{mg} \cdot \text{kg}^{-1}$, intraperitoneally). **RESULTS** *A. sinensis* significantly increased longitudinal bone growth rate in adolescent female rats at 300 $\text{mg} \cdot \text{kg}^{-1}$ (6.1%, $357.34 \pm 32.67 \mu\text{m} \cdot \text{d}^{-1}$) compared to control group ($336.80 \pm 14.47 \mu\text{m} \cdot \text{d}^{-1}$). **CONCLUSION** *A. sinensis* extract significantly increased longitudinal bone growth rate and growth plate height in adolescent female rats. These results suggest that *A. sinensis* could be helpful for increasing bone growth rate in children who have growth retardation.

Key words: *Angelica sinensis*; longitudinal bone growth rate; herbal extract; rhGH; tetracycline

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Effect of *Dioscorea batatas* on longitudinal bone growth rate in adolescent female rats

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Abstract: **OBJECTIVE** The root of *Dioscorea batatas*, rich in steroidal saponins, alkaloids, tannins, phytosterols, and starch, is an herbal medicine of tonifying qi and nourishing stomach after invigorating spleen with a long history of safe use for treatment of chronic dysentery and weakness of the spleen and stomach in Korea. This study was aimed to investigate the effect of *D. batatas* on longitudinal bone growth rate in adolescent female rats. **METHODS** *D. batatas* was extracted with 30% EtOH for 3 h at 90°C in a reflux apparatus. In two groups, we administered a twice daily dosage of *D. batatas* extract (at 30 and 300 $\text{mg} \cdot \text{kg}^{-1}$, respectively) *per os* for 4 d, and in a control group, we administered vehicle only under the same conditions. Recombinant human growth hormone (rhGH) was subcutaneously injected once daily. All rats were born at same day (33 d-old). On day 3, tetracycline was injected intraperitoneally to form a fluorescent band on the growth plates. **RESULTS** The bone growth rate in groups administered *D. batatas* 300 $\text{mg} \cdot \text{kg}^{-1}$ and rhGH was significantly increased to 343.8 ± 20.7 , and $359.6 \pm 30.2 \mu\text{m} \cdot \text{d}^{-1}$