

***In vitro* Anti-obesity Effect of 4-hydroxybenzyl Alcohol  
from *Cudrania tricuspidata***

**Jun-Hui Choi<sup>1</sup>, Se-Eun Park<sup>1</sup>, Myung-Kon Kim<sup>2</sup>, Hyo-Jeong Lee<sup>1</sup>,  
Kyoungsun Seo<sup>3</sup> and Seung Kim<sup>2\*</sup>**

<sup>1</sup>Department of Food Science and Biotechnology, Gwangju University, Gwangju 61743, Korea

<sup>2</sup>Department of Food Science and Technology, Chonbuk National University, Iksan, Korea

<sup>3</sup>Jangheung County Mushroom Research Institute, Jangheung 59338, Korea

The present study was investigated on *in vitro* anti-obesity effect of 4-hydroxybenzyl alcohol from *Cudrania tricuspidata*. We isolated various compounds from *Cudrania tricuspidata*. Among these compounds, anti-obesity effects of 4-hydroxybenzyl alcohol was examined by lipase activity assay, cyclic adenosine monophosphate (cAMP)-specific phosphodiesterase type IV (PDE4) activity assay, and citrate synthase activity assay. 4-hydroxybenzyl alcohol and *Cudrania tricuspidata* extracts inhibited the enzymatic activities of lipase, PDE4, and citrate synthase. Lipase is known to mediate the hydrolysis of triacylglycerol in adipose tissue and cholesterol esters in other tissue or cells. Also, PDE4 hydrolyses cAMP, a crucial secondary messenger for in metabolic pathways including glucose and lipid metabolism, lipolysis, and thermogenic function. 4-hydroxybenzyl alcohol and *Cudrania tricuspidata* extracts induced the inhibitory effect against each enzymatic activity on several specific substrates as observed by detection at 405 or 412 nm. These findings might be attributable to the inhibition of adipogenesis, and partial prevention of obesity. In conclusion, these results show that 4-hydroxybenzyl alcohol and *Cudrania tricuspidata* may be a critical candidate as a natural anti-obesity source.

**Key words:** *Cudrania tricuspidata*, 4-hydroxybenzyl alcohol, Anti-obesity effect, Adipogenesis

[This research was supported by “Development of techniques for export of fermented vinegar with functional fruits (PJ012588032018)” from Rural Development Administration (RDA), Republic of Korea.]