様式 7

論　文　内　容　要　旨

報告番号	甲　創　第　31　号	氏　名	許 文婷

学位論文題目	Methanol extraction fraction from *Citrus Sudachi* peel exerts lipid reducing effects in cultured cells (スダチ果皮由来成画分による細胞内脂質を減らす薬効メカニズムの研究)

Introduction: Diabetes mellitus is characterized by elevated blood glucose levels. Ectopic fat accumulation is associated with insulin resistance and type 2 diabetes mellitus. In this case, triglycerides stored more in tissues which normally contain only small amounts of fat than adipose tissue, inducing metabolic processes disruption and organ function impairment. *Citrus Sudachi* is an evergreen tree that distributes mainly in Tokushima Prefecture of Japan. Previously, we have demonstrated that *Citrus Sudachi* could prevent the blood glucose and fatty acid elevation in human subjects. In this study, we illustrated the function of methanol extracts from Sudachi peel and investigated the mechanism of this effect.

Methods: We got the five kinds of methanol extracts by using diaion HP-20, and those were named by hydrophobicity from M-F1 to M-F5. C2C12 cells were stimulated by five kinds of Sudachi peel methanol extractions. After the treatment, intracellular triglyceride and non-essential fatty acid were assessed. PCR and Western blotting were used to determine the effect of M-F4 of key metabolism-regulating genes. **Results:** Among the 5 kinds of Sudachi methanol extracts, only M-F4 significantly decreased the intracellular triglyceride of C2C12 cells. It augmented the AMPK activity and increased the transcription of PPARα and its downstream target CPT-1b and UCP2.

Conclusion: M-F4 improved the lipid metabolism possibly through AMPK, PP ARα and their downstream targets like CPT-1b and UCP2. Furthermore, this extract may be useful for preventing obesity and diabetes related diseases.