**Comparative Study Of Chemical Composition And Antidiabetic Activity Of The Extracts From Peels Of Yellow (*Citrus sinensis* var. Navel) And Green (*Citrus nobilis* var. Sanh) Oranges**

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**Background and aims.** The extract from orange peels has been demonstrated to possess strong antidiabetic activity *in vivo*. Most of the studies have been performed by using orange peels from *Citrus sinensis* and none form *Citrus nobilis*. The study was conducted to compare yield, chemical composition, α-amylase and α-glucosidase inhibiting activity and anti-diabetic activity using alloxan monohydrate induced diabetic mice of the extract from peels of yellow (*Citrus sinensis* var. Navel) and green (*Citrus nobilis* var. Sanh) oranges.

**Methods.** Fruit peel powder of two species were extracted by soaking method with ethanol (99.9%) at room temperature. The extract powders were achieved after vacuum evaporation of ethanol followed by freeze-drying. The extract were chemically analysed for the presence of alkaloids, phenolics, flavonoids, tannins and saponins. Total polyphenol (TPC), total flavonoid (TFC) and tannin content of the extracted were quantified, the main compounds of extracts were determined by HPLC. The antidiabetic activities of two extracts were tested *in vitro* and *in vivo*.

**Results.** The extract yield of Sanh orange (11.7%) was higher than that of Navel orange (5.97%). Two species had the extract containing alkaloids, phenolics, flavonoids, tannins and no saponins. The TPC, TFC and tannin contents of Sanh orange extract (46.67 mg GAE/g; 28.3 mg QE/g and 3.28%, respectively) were also higher than Navel orange (31.7 mg GAE/g; 19.9 mg QE/g and 2.91%, respectively). The phytochemicals in orange peel extract were determined by high-performance liquid chromatography (HPLC) including gallic acid, ascorbic acid, chlorogenic acid, caffeic acid, naringin, hesperidin, diosmin, rutin, quercetin and kaemferol. Hesperidin is the main compound in both extracts with similar content (57.76 - 58.74 mg/g extract) and chlorogenic acid (4.57 mg/g extract) which were only present in the extract of Sanh orange. Sanh orange extract had a higher ability to inhibit the activity of α-amylase and α-glucosidase enzymes than Navel orange. However, Navel orange extract controlled hyperglycemia in diabetic rats more effective than Sanh orange extract at all tested doses. At the dose of 400 mg extract/kg body weight of mouse and after 21 days of treatment, diabetic mice treated with Navel extract had blood glucose comparable to normal mice (about 116 mg/dL). While blood glucose of diabetic mice treated with Sanh extract was the same with that of Glucophage treatment (about 132 mg/dL). Untreated diabetic mice had blood glucose of 492 mg/dL. In conclusion, both orange peel extracts can be used to support the treatment of diabetes.

**Conclusion/Discussion.** Both orange peel extracts can be used to support the treatment of diabetes