

### Efficiency of Thai local vegetables on osteoblast cell proliferation

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**Introduction:** Bone loss is accelerated in middle aged women but increased vegetable intake positively affects bone health. Animal studies demonstrated bone resorption inhibiting properties of specific vegetables a decade ago. Thai localvegetables are sources of several secondary metabolites that showed potential for health promotion and prevention of diseases. There are plenty of vegetables included in Thai traditional medicine related to woman's healthcare that are still consumed as food. However, efficiency of Thai local vegetables on osteoblast cell proliferation has never been reported. Therefore, this research project aims to study the efficiency of 20 Thai vegetables on osteoblast cell proliferation. **Materials and Method:** Human fetal osteoblastic cell line, hFOB 1.19 was chosen as a model for this study and the cell proliferation was measured by the PrestoBlue™ method. The experimental groups were osteoblast cells co-cultured with ethanolic extracts of the selected plants with the concentrations range from 10<sup>-5</sup> – 1 mg/ml. Two control groups of this study were osteoblast cells cultured in media and the cells co-cultured with either 0.5 % dimethyl sulfoxide or 70 % ethanol. **Results:** Significant promotion of cell proliferation was observed in 4 of 20 extracts, and all of extracts were from Thai traditional medicine. The highest percent survival of each herb and the corresponding concentration were as follows: *Polygonum odoratum* Lour. (131.19 %, 10<sup>-5</sup> mg/ml), *Cymbopogoncitratrus* (DC.) Stapf (125.17 %, 1 mg/ml), *Allium cepa* (124.53 %, 1 mg/ml) and *Alliumascalonicum* (119.61 %, 1 mg/ml). **Conclusion:** Four of 20 local vegetables selected from Thai traditional formulation are able to stimulate osteoblast cell proliferation. Therefore, these vegetables are promising as an alternative intervention for osteoporosis.

**Keywords:** Thai local vegetables, Osteoblast proliferation, *Polygonum odoratum*, *Cymbopogon citratrus*,

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### Detection of Carbapenemases and Antibiotic Resistant Genes in Carbapenem-resistant *Acinetobacter* spp. Isolated From Patients at Sunpasitthiprasong Hospital

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**Introduction:** *Acinetobacter* spp., the gram negative bacterium with high incidence of multi-drug resistance had been mostly found as causative pathogens of nosocomial infection in patients admitted in the intensive care unit. The objectives of this study were to detect the productions of carbapenemases and antibiotic resistant genes of carbapenem-resistant *Acinetobacter* spp. at Sunpasitthiprasong Hospital. **Materials and Methods:** One hundred isolates of imipenem-resistant *Acinetobacter* spp. isolated from patients admitted at Sunpasitthiprasong Hospital were used in this study. Productions of carbapenemases were tested by modified Hodge test and combined disc test. Four antibiotic resistant genes, *bla*<sub>OXA-like</sub>, involving in production of Class D carbapenemases were detected by multiplex polymerase chain reaction. **Results:** Carbapenemases production were found in 35 and 33 isolates by the modified Hodge test and combined disc test, respectively. *bla*<sub>OXA-like</sub> genes were detected as *bla*<sub>OXA-51-like</sub>, *bla*<sub>OXA-23-like</sub> and *bla*<sub>OXA-58-like</sub> genes in 92, 92, and 8 isolates, respectively. No detection of *bla*<sub>OXA-24-like</sub> gene was observed. None of the candidate genes were simultaneously found among 4 isolates. **Conclusion:** Carbapenemases productions may be an important mechanism of carbapenem resistance among clinical isolates of *Acinetobacter* spp. at Sunpasitthiprasong Hospital. The most common types of class D carbapenemases genes contributing to carbapenem resistance in these isolates were *bla*<sub>OXA-51-like</sub> and *bla*<sub>OXA-23-like</sub>. However, the expression of these resistant genes should be further investigated.

**Keywords:** *Acinetobacter* spp., Carbapenemases, *bla*<sub>OXA-like</sub> genes

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