

CHAPTER VI

CONCLUSION

Effects of *P. mirifica* on bone loss in gonadectomized rats and determinations of major phytoestrogen concentrations in rodent diets and *P. mirifica* tuberous roots can be summarized as follows;

1. This study first shows that *P. mirifica*, a Thai herb, completely prevents bone loss in terms of bone mineral density, bone mineral content and bone microarchitecture in sex hormone-deficient female and male rats.
2. The efficacy of preventive effects of *P. mirifica* on bone loss depends on dosages of *P. mirifica* treatment and also depends on bone types (axial and long bones), bone sites (metaphysis and diaphysis) and bone compartments (trabecular and cortical bones).
3. Preventive effects of *P. mirifica* on bone loss are observed in both trabecular and cortical compartments. However, the response of trabecular bones to estrogen deficiency or *P. mirifica* treatments is remarkable, whereas the effects on cortical bones are relatively small.
4. Changes of bone mineral densities and bone mineral contents with age, from 7 to 10 months old in rats, vary and depend on bone types, bone sites and bone compartments.
5. The ovariectomy in female rats could induce excess of the body weight gain, whereas the orchidectomy in male rats reduces the body weight gain. Feeding with *P. mirifica* or 17 α -ethinylestradiol can lessen the body weight gain in OVX female rats, but further reduce the body weight in ORX male rats.

6. Feeding of *P. mirifica* as well as 17 α -ethinylestradiol increase uterine weights in female OVX rats, but no effects on seminal vesicles and prostate glands in male ORX rats are observed.
7. Feeding of *P. mirifica* does not alter either serum estradiol levels (in OVX and ORX rats) or serum testosterone levels (in ORX rats).
8. Responses of bones to *P. mirifica* treatments differ between males and females (sex differences) and depend on dosages of *P. mirifica* treatment. The 10 mg/kg BW/day of *P. mirifica* can prevent bone loss on the long bone in OVX female rats, but not in ORX male rats.
9. The total amount of four isoflavones (daidzin, daidzein, genistin and genistein) observed in rodent diets available in Thailand suggests that feeding of Thai rodent diets to animals may be enough to prevent bone loss caused by estrogen deficiency.
10. The high amount of isoflavones found in rodent diets gives a concern on diet feedings to rats when researches on phytoestrogens and/or estrogens are conducted. The soybean-free diet is recommended to use for such studies.