

ผลของผลิตภัณฑ์กวาวเครือขาวต่อต่อมลูกหมาก และอวัยวะของหนูถีบจักร

EFFECTS OF *Pueraria mirifica* PRODUCT ON PROSTATE GLAND AND TESTES OF MICE.

จินณวัตร มานะเสถียร มานพ มณีรัตน์ สมศรี วงศ์เรื่อน ยุทธนา สมิตะสิริ

Jinnawat Manasathien Manop Maneerut Somsri Wongruen Yuthana Smitasiri

Mae Fah Luang University , A. Muang , Chiang Rai 57100

บทคัดย่อ : ผลิตภัณฑ์กวาวเครือขาว ซึ่งประกอบด้วย ผงปั่นแห้งจากหัวกวาวเครือขาว สมอไทย สมอพิเภก และมะขามป้อม (อัตราส่วน 2 : 1 : 1 : 1 โดยน้ำหนัก) ในขนาดต่าง ๆ 9 ขนาด เมื่อป้อนให้กับหนูถีบจักรเพศผู้ วันละครั้งในตอนเช้าทุกวันติดต่อกันเป็นเวลา 10 , 20 และ 30 วัน เมื่อเปรียบเทียบกับกลุ่มควบคุม พบว่าผลิตภัณฑ์กวาวเครือขาวมีผลต่อน้ำหนักตัวและน้ำหนักอวัยวะต่าง แต่มีผลทำให้น้ำหนักต่อมลูกหมากน้อยกว่ากลุ่มควบคุมอย่างมีนัยสำคัญทางสถิติ โดยเฉพาะอย่างยิ่งเมื่อให้ติดต่อกันเป็นเวลา 20 และ 30 วัน ขณะที่การให้ผลิตภัณฑ์กวาวเครือขาวกับหนูถีบจักรทุกวันติดต่อกันเป็นเวลา 10 วัน ไม่ค่อยมีผล เมื่อตรวจสอบฤทธิ์คล้ายเอสโตรเจนของผลิตภัณฑ์กวาวเครือขาวปรากฏว่าออกฤทธิ์คล้ายเอสโตรเจนในหนูถีบจักรที่ตัดรังไข่ได้

จากการวิจัยนี้สรุปว่าผลิตภัณฑ์กวาวเครือขาวนี้มีผลทำให้ต่อมลูกหมากของหนูถีบจักรเล็กลง โดยไม่ค่อยมีผลต่อน้ำหนักตัวและอวัยวะ เข้าใจว่าการที่ผลิตภัณฑ์กวาวเครือขาวออกฤทธิ์ต่อต่อมลูกหมากได้เนื่องจากฤทธิ์คล้ายเอสโตรเจนของผลิตภัณฑ์

Abstract : Nine dosages of *Pueraria mirifica* product (PM product) which consisted of *Pueraria mirifica* tuber powder mixed with dried fruit powder of *Terminalia chebula* , *Terminalia bellerica* and *Phyllanthus emblica* (ratio 2 : 1 : 1 : 1 by weight) were orally fed to the mature male mice once daily in the morning for 10 , 20 and 30 consecutive days compared with the control group . It was found that PM product pronounced some effects on body and testicular weight of the mature male mice but significantly reduced the prostate gland weight especially in the groups receiving PM product for 20 and 30 consecutive days whereas treatment of PM product for 10 consecutive days did not show any effects . Investigations for estrogenic activity of PM product in ovariectomized mice revealed that PM product could pronounce estrogenic effects.

It was concluded that PM product could reduce the prostate gland weight according to its estrogenic effects whereas PM product had some effects on body weight and testes of the mice.

Methods

This project was divided into 2 experiments

Experiment 1 Studies on the effects of *Pueraria mirifica* product on prostate gland and testes of the male mice

PM product tested

Pueraria mirifica product (PM product) consisted of dried *Pueraria mirifica* tuber powder mixed with dried fruit powder of *Terminalia chebula* , *Terminalia belerica* and *Phyllanthus emblica* at the ratio 2 : 1 : 1 : 1 by weight respectively

The experimental animals

Mature male ICR mice weighing between 28- 30 g. from National Laboratory Animal Center , Mahidol University were used in this study . The tested male mice were divided into 6 groups. The first , third and fifth groups receiving 1 ml distilled water orally by force feeding / mouse / day in the morning for 10 , 20 and 30 consecutive days respectively. The second fourth and sixth groups did the same as the control group but receiving various dosages of PM product at the dosage of 0.25 (dosage used in human) , 0.5 , 1 , 2.5 , 5 , 10 , 15 , 20 and 25 mg / ml / mouse / day . On Day 11 , 21 and 31 , each mouse was sacrificed , the body weight was recorded , the testes and prostate gland were removed and weighed . Datas were statistically analysed using ANOVA and lsd.

Experiment 2 Studies on the estrogenic effects of PM product.

Immature female ICR mice (3 weeks of age) were bilaterally ovariectomized. Two weeks after ovariectomy , the ovariectomized mice were divided into 4 groups. The first group served as control receiving 1 ml distilled water orally by force feeding once daily in the morning for 2 consecutive days . The second , third and fourth groups did the same as control but receiving 0.25 (dosage used in human) , 2.5 and 25 mg of PM product / ml / mouse / day for 2 consecutive days . On Day 3 , the mice were sacrificed then body weight , uterine wet weight and dried weight were recorded and statistically analysed by ANOVA and lsd.

Results

Experiment 1 : PM product pronounced some effects on body weight and testicular weight of the mice but significantly reduced the prostate gland weight of the mice especially after PM product treatment for 20 and 30 consecutive days. The effects on prostate gland depend on the dosage of PM product also . It was notably that PM product at the dosage used in human when fed to the mice for 30 days could significantly reduce the prostate gland weight.

PM product at only some dosage used could pronounce its effect on the testes by reduction the testicular weight . And PM product seemed to pronounce its effect on the prostate gland better than the testes .

Experiment 2 : PM product could pronounce the estrogenic activities in bilaterally ovariectomized mice by significantly increase in the uterine wet and dried weight when compared with the control. It was notably that the PM product treated to the mice only 2 days in this experiment but in Experiment 1 the PM product treated to the mice for 10 , 20 and 30 days .

Discussion

The reduction of prostate gland weight of the PM product treated mice might be due to the estrogenic effect of PM product although the PM product also had some effects on body weight and testicular weight . This evidence supported the previous evidence (Langkalichan , 1984) that high dosage of PM alone could reduce the prostate gland of the rat but in this experiment used PM product with low dosage instead. Anusarnsunthorn (1931) had ever reported that the aged men could take PM product at low dosage for their health. According to this result , it is possible that PM product at low dosage can sometimes control the prostate gland of the aged men and may reduce the risk of prostate enlargement which often occur in the aged men.

This experiment supported that PM product had some potential in reduction of prostate gland or might use for the control of prostate gland.

Conclusion

Treatment of PM product for 20 , 30 consecutive days can reduce the prostate gland weight of the mature male mice but has some effects on body and testicular weight . The reduction of prostate gland weight of PM product may be due to its estrogenic effects.

References

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Keywords : *Pueraria mirifica* product ; prostate gland ; testes ; mice

