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Effect of Tannic Acid on the Development and Growth of Mosquito, *Aedes albopictus*

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We were performed to investigate the effects of tannic acid on the mortality, larval duration, pupal fresh weight and wing length of the asian tiger mosquitoes, *Aedes albopictus*. Median pupation time was correlated inversely with concentration of tannic acid, lasting 6 days at control and up to 15 days at 4mM tannic acid treatment. Duration of the pupal period also varied from 6~12 days at control to 7~19 days at treatment group of tannic acid after egg hatching. The 1st instar larvae of *Ae. albopictus* were exposed to four tannic acid concentrations(1, 2, 3, 4mM) for 24 and 48 hours. The highest LC50 concentration of tannic acid was 62.73mM at the last instar larvae of *Ae. albopictus* after 24 hours treatment. Median lethal concentration(LC50) under different concentration of tannic acid was dependent on the length of exposure. There was a significant positive relationship between pupal fresh weight and adult wing length. In conclusion, the most prominent effects of high concentration of tannic acid were to prolong the larval period and to reduce the pupal fresh weight, numbers of adult eclosion and adult wing length. And sex ratio was affected, too.

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일광산 습지의 생태학적 연구

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부산광역시 기장군 일광면 삼성리에 위치한 일광산 습지는 해발 100m 부근에 형성된 약 천 평의 소규모 습지로 계곡 옆의 경사면에 형성되어 있다. 습지의 토양은 pH 6.57, 총 질소량 0.07%, 유기물 함유량 2.24%, 무기성분은 K가 392.43 mg/kg로 가장 높게 조사되었고 중금속은 Al이 6,858.2 mg/kg로 가장 높게 조사되었다. 습지의 수질은 pH 6.7, DO 6.5, BOD 1.75, COD 10.3, 무기성분은 Na가 7.81 ml/l로 가장 높게 조사되었고 중금속은 토양과 마찬가지로 Al이 0.46 ml/l로 가장 높게 조사되었다. 조사된 일광산 습지의 대표적 식물 군락은 식충식물인 끈끈이주걱, 이삭귀개, 땅귀개, 자주땅귀개 그리고 개수염, 참바늘꿀, 잡자리난, 오리나무 등이었으며 습지내에서는 개미탑(*Harorrhagis micrantha*) R. BR.을 비롯한 총 15과 27속 34종의 식물이 조사되었다. 일광산 습지는 규모는 작지만 식충식물 같은 희귀식물이 많아 보존의 필요성이 높은 지역이다.

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Effect of Tannic Acid on the Composition of Organic Compounds of *Aedes albopictus* during Development

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We tested the effect of the tannin on organic compound composition and body weight of pupa and adult of the asian tiger mosquitoes, *Aedes albopictus*. Pupal fresh weight decreased with an increase in concentration and in particular, 24hr treatment group was significantly different in both sexes(p<0.01). Total protein contents were significantly lower level than tannin free control during 24, 48 and 72hrs of treatment for each tannin concentrations(0, 1, 3, 5 mM). Especially protein contents declined dramatically in the adult female of 5mM treatment. Total lipid contents was showed the largest reduced in 5mM of treatment of adult male. In female of pupa and adult, protein and lipid contents was shown higher level than male of same case. Esterase were separated 5 bands by Native-PAGE. More kinds of esterase band were found in pupal female of 5mM tannin treatment. These results suggested that high tannin concentrations may contribute to decreased organic compound level and growth rate of *Aedes albopictus*.

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Studies on the Distribution of Plant Community in Mt. Chiri Using GIS

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This study carried out to find relationships between environmental factors and spatial distribution of plant communities, and the spatial patterns of net primary production in Mt. Chiri by using Modular GIS Environment (MGE) program. The vegetation of Mt. Chiri physiognomically showed deciduous broad-leaved forest characterized by *Quercus mongolica* community and evergreen coniferous forest of *Pinus densiflora* and *Abies koreana* community. The *Q. mongolica* community showed the largest distributional area of 56.5% in Mt. Chiri. Mt. Chiri showed mean elevation of 700~800 m, 76% of above 20 slope degree, and more area of eastern and western slope aspect than the northern and southern slope aspect. Mt. Chiri contained four forest zones of subarctic, northern cool temperate, central cool temperate, and southern cool temperate forest. Northern cool temperate forest zone (WI 55~85 /month) showed the largest area, 74% of Mt. Chiri. The precipitation is above the potential evapotranspiration. Then water deficit which limit the plant distribution does not occur. The community of *Abies koreana*, *Q. variabilis*, *P. densiflora*, *Q. serrata*, and *Q. mongolica* orderly distributed from cold to warm on the WI gradient. And *Acer mono* community was entirely included in *Q. mongolica* community. The distribution of different plant communities along potential evapotranspiration gradient showed the sequence of *Q. mongolica*, *A. mono*, *Q. serrata*, *P. densiflora*, *Q. variabilis* community from lower and higher values. Total net primary productivity of Mt. Chiri is 554,194.91 ton/yr. *Q. mongolica*, *Q. serrata* and *P. densiflora* community showed 55.8%, 10.63% and 5.82% of total net primary productivity in Mt. Chiri, respectively.