# Posters

## Lipids and fatty acids in edible insects in Thailand

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**Background -** Some insects have long been consumed in Thailand and they are recognised locally to have beneficial effects for human health, however, there are no data on their lipid and fatty acid content.
**Objective** - The aim of the present study was to investigate the lipid and fatty acid content in the edible insects in Thailand.
**Design** - The insects Giant water bug (*Lethocerus indicus* Lep.-serv, LILS), True water beetle (*Cybister limbatus* Fabricius, CLF), Water scavenger beetle (*Hydrous cavistanum bedel*, HCB) and Scarabaeidae (*Holotrichia sp*, HT) were collected from the local lake, Mahasarakham, Thailand. The lipids were extracted by chloroform-methanol (2:1, v/v). Total lipid content was measured gravimetrically, fatty acids were analysed by gas liquid chromatograph.
**Outcomes** - Total lipid content of the analyzed insects ranged from 1.8% to 20.1% (g/100g). The table below reports the lipid (g/100g) and fatty acid contents (% of total fatty acid) of analyzed insect samples, Mean ± SD, n=3.

| | Total lipids | Total SFA | Total MUFA | 18:2n-6 | 18:3n-3 | 20:4n-6 | 20:5n-3 | Total PUFA |
|---|---|---|---|---|---|---|---|---|
| LILS | 20.1±2.7 | 39.2±1.0 | 42.4±1.8 | 9.0±1.5 | 3.4±0.3 | 4.1±0.3 | 1.9±0.7 | 18.4±0.8 |
| CLF | 5.8±0.6 | 37.2±0.6 | 36.0±2.8 | 13.3±1.7 | 6.3±0.5 | 4.0±0.3 | 1.6±0.3 | 26.8±2.2 |
| HCB | 2.9±0.4 | 31.2±0.2 | 34.3±1.3 | 21.5±1.3 | 3.1±0.4 | 7.1±0.2 | 2.7±0.1 | 34.5±1.4 |
| HT | 1.8±0.2 | 38.3±0.4 | 34.6±1.8 | 22.4±1.8 | 3.1±0.3 | 1.6±0.2 | nd | 27.1±1.7 |

**Conclusions** - The present results indicated that the lipid and fatty acid content in the edible insects varied greatly. All analyzed insects contain 18:2n-6, 18:3n-3 and 20:4n-6, and 20:5n-3 except HT.

## Alpha-linolenic acid content in edible wild seeds in Thailand

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**Background -** It has long been known that edible nuts and seeds have beneficial effects on human health due to the content of vitamins, phytochemicals, minerals as well as alpha-linolenic acid (18:3n-3).[1]
**Objective** - The aim of the present study was to investigate the lipid content and composition of the edible wild seeds in Thailand.
**Design** - The edible wild seeds of Red sandalwood **(***Adenanthera pavonia Linn*, APL), Kapok (*Boxmbax ceiba Linn*, BCL), Passion fruit (*Passiflora foetida Linn*, PFL) and Bengal almond (*Terminalia catappa Linn*, TCL) were collected from northeastern Thailand. The lipids were extracted by chloroform-methanol (2:1, v/v). Total lipid content was measured gravimetrically and the fatty acid composition was analyzed by gas liquid chromatography.
**Outcomes** - Total lipid content of the analyzed edible wild seeds ranged from 19% to 47% (g/100g). The Table below reports the content of lipids (g/100g) and main fatty acids (% of total fatty acid) of analyzed edible wild seeds, Mean ± SD, n=3.

| | Total lipids | 18:3n-3 | 18:2n-6 | 18:1 | Total SFA | Total MUFA | Total PUFA |
|---|---|---|---|---|---|---|---|
| APL | 23.8±1.1 | nd | 54.6±0.7 | 16.2±0.1 | 11.6±0.3 | 17.1±0.2 | 71.3±1.0 |
| BCL | 21.1±1.5 | 1.1±0.0 | 35.9±1.0 | 22.4±0.7 | 34.4±2.3 | 25.6±1.0 | 40.0±1.6 |
| PFL | 18.8±0.3 | 0.4±0.0 | 71.4±0.4 | 16.2±0.5 | 11.8±0.8 | 16.4±0.5 | 71.8±0.4 |
| TCL | 47.1±1.7 | nd | 36.4±1.0 | 31.1±0.3 | 32.5±0.7 | 31.1±0.3 | 36.4±1.0 |

**Conclusions** - The present results indicated that the edible wild seeds were very low in 18:3n-3, and high in 18:2n-6 and total lipid.

**References**

1. Li D, Premier R. Cuisine: Hangzhou foods and their role in community health and nutrition. Asia Pac J Clin Nutr 2004; 13: 141-146.