**Title: Occupational Exposure for Thai Traditional Tobacco Farmers in Nan Province, Northern Thailand: Status and Health Risk**

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**ABSTRACT**

**Background and rationale:** Thai Traditional Tobacco is mainly produced in Nan province in the northern of Thailand. The production yield is around 10% of whole tobacco products in Thailand. Several small tobacco farms are grown alongside the Nan River, main rivers in the northern. The total area devoted to tobacco cultivation in Nan province, Thailand in 2011 was about 7,190 rais (~1,200 hectares) and the tobacco product was around 3.7 million kilograms, most tobacco product was from Thawangpha District (1.6 million kilograms) and Chiangklang District was approximately 0.92 million kilograms. Type of tobacco grown as Thai Traditional Tobacco (*Nicotiana Tabacum* L.) is known as a non-Virginia type. A matured non-Virginia tobacco species have 3 to 4 times the amount of nicotine as dose Virginia.

**Objectives of the study:** This study aimed to define the Thai Traditional Tobacco processing and to identify risk factors associated with occupational nicotine exposure.

**Methodology:** A cross-sectional study was conducted with 360 Thai Traditional Tobacco farmers in Praputtabath Sub-District, Chiangklang District and Phator Sub-District, Thawangpha District. The farmers were randomly selected and interviewed using face to face questionnaires from April to May 2012.

**Results:** There were 360 households growing a systemic small tobacco farm. Growing tobacco is a labor-intensive farming, it is estimated at about 2,000 hours per year per hectares. Most of all farmers were male (95%), they have experienced of growing tobacco range from 2 - 45 years (mean±SD, 18.19±8.30). Tobacco production consisted of four steps: 1) cultivation, including seeding, transplanting, and growing the plant; 2) maintaining the tobacco plant, including watering, applying pesticides, applying fertilizer, and topping or
snapping off the flower stalk; 3) harvesting, including picking and transporting the leaves; and 4) drying, including sun-curing, removing the stem, cutting the leaves, placing the cut leaves on bamboo plates to dry, spraying the tobacco to adjust color, and packing. The study revealed that the dermal pathway was the major route of nicotine exposure. Factors that may increase adverse health effects related to GTS are farmer behaviors and practices, such as not using gloves while harvesting, and body soaking when watering. Inhalation, when coloring the tobacco, is a minor exposure route.

**Conclusion and recommendations:** The further study should investigate health problem entirely related to Thai Traditional Tobacco Farmers exposure and Green Tobacco Sickness (GTS). And development of qualitative instruments (risk perception) to evaluate life style and health problems of Thai Traditional Tobacco farmers are recommended.

**Key words:** Occupational Exposure, Thai Traditional Tobacco Farmers, Health Risk