

Abstract

This research project focused on the participation as well as the creation of learning communities in the conservation and restoration of local biodiversity for food and medicine of highland communities. The objectives were (1) Study and gather ethnobotanical knowledge in plant used by local people, (2) Propagation and cultivation study of local species (3) Building network and transferring knowledges of conservation and restoration of biodiversity between communities, and (4) Database development for highland biodiversity and customary used and (5) Conservation and Rehabilitation of local mushroom for food sources of Highland community.

The results were summarized as follows: (1) Ethnobotanical used in 4 areas including Ban Pang Ton Duea (Lanna), Ban Lai Ai (Lanna), Ban Papae (Lua), and Ban Huay E-khang (Karen) were 166, 155, 155 and 154 species, respectively. There were 67 plant species were selected to be enrichment such as *Paris polyphylla* Sm., *Berchemia floribunda* Wall., *Pueraria mirifica*, *Litsea cubeba* (Lour.) Pers., *Zanthoxylum limonella* Alston, and *Melientha suavis* Pierre., (2) Five native plant restoration schemes comprised of community food bank, indigenous seeds collection, local plant demonstration, agroforestry, and home garden, (3) The propagation study by cleft grafting were investigated in 2 species; *Pittosporopsis kerrii* Craib and *Celastrus paniculata* Willd., with resulted in new shooting 73 and 20%, respectively, (4) Local leaning programs for transferring local knowledge were initiated in 4 communities. The activities consisted of local biodiversity survey, indigenous seed collection, plant propagation, and plant utilization, (5) The database was also developed for managing data of highland biodiversity and all related data such as plant and mushroom diversities, house of local knowledge holders, bio-product information, number of conserved and restored plants, and article media and display (6) The study of relationship between local plants and mycorrhizal mushroom were examined, found that *Phlebopus spongiosus* Pham & Har. Takah (Tap Tao) could grow with *Ficus lacor* Buch.-Ham. and form fruiting body after inoculation by three years, with root infection could observed by mealybug aggression. In saprobic mushroom cultivation test, the *Lentinus polychrous* lév was form fruiting body after inoculation by 11 months, whereas no fruiting body forming was found in *Pleurotus giganteus* (Berk.) S.C. Karunarathna & K.D. Hyde cultivated in bamboo garden, due to ammonium sulphate fertilizer application. The cultivation of *Auricularia delicata* (Mont.) Henn and *A. polytricha* (Mont.) Sacc., showed rather high productivity, but the stability of *A. polytricha* was better than *A. delicata*.

Keywords: Food bank, Indigenous plant, Ethnobotanical knowledge, Local mushroom, Mycorrhiza, Highland Biodiversity