



CHAPTER I

INTRODUCTION

Bidens biternata Merr. & Sherff is a medicinal herb known in Thai as Koncham. The genus *Bidens* belongs to the tribe Heliantheae of the family Compositae. This genus comprises of 150 species (Kirtikar and Basu, 1935) found in Thailand 3 species (Tem Smithinand, 1980) as followed

1. *Bidens bipinnata* Linn. ดาวกระจาย Daao krachai (Central), ปังกุกโคหน่วย Pang-kuk kho-nuai (Chinese), หย้าแหลมกลั๊ Yaa laem noksai (Northern).
2. *Bidens biternata* (Lour) Merr. & Sherff ex Sherff ก้นจ้ำ Koncham (Nakhon Ratchasima).
3. *Bidens pilosa* Linn กีนกลั๊ Kee nok sai, หย้าก้นจ้ำขาว Yaa koncham khaao (Saraburi), ปีนกลั๊ Puen noksai (Northern), Spanish Needle.

Bidens biternata Merr. & Sherff is an annual herb, 0.2-2 meters high with erect, branched, quadrangular stems and opposite leaves. The leaves are on 1-5 cm long petioles, imparipinnate and partly bipinnate, on both surfaces thinly hairy or glabrous. Leaflet ovate or ovate-oblong, with a cuneate base and a tapering acute apex, serrate. Heads usually radiate, 10-30 flowered, 4-7 mm long, 3-7 mm diameters; peduncles 1-9 cm; marginal flowers 2-4, or wanting; ligule of corolla oblong-elliptic, whitish or yellow, 2-3-dentate, 4-6 mm long. Outer involucral bracts linear, rarely linear-spatulate, acute, distinctly ciliate, subglabrous, inner ones elliptic, with a subacute or subobtuse, short top, sometimes fringed; achene 0.5-2 cm long; apical awns 2-5 (usually 4), 3-4 mm long (Backer and Bakuizen, 1965).

Bidens sp. is a cosmopolitan weed and used for medicinal purposes in many countries. In china, *Bidens bipinnata* and *B. pilosa* are used to treat stings of poisonous insects, snake bites and unhealthy granulations of wounds; the juice is used both internally and externally. A decoction of the leaves of *B. pilosa*, mixed with rice wine, is taken to relieve shock after accidents, to treat lung trouble, prescribed as stypitic and alterative and is one ingredient in tea brewed to treat fever. In Indo-China, the pounded leaves of *B. pilosa* are made into a poultice to be laid on the eyelids to

treat eye affections. In Indonesia, juice of the leaves of *B. biternata* or an infusion of the roots of *B. pilosa*, is used to cleanse dimmed eyes. Bruised leaves of either species may be used to dress fresh wounds or burns, or heated leaves are applied as maturative on boils. The young plant or leaves of *B. pilosa* are chewed or rubbed on the gums to relieve toothache, a decoction of the plant is taken as a bechic, juice from the crushed leaves are prescribed as an antidote. In New Guinea, the achenes are pushed into a boil to catch and pull out the head. In Solomon Islands, the roots are used to treat stomachache (Perry, 1980).

Although *Bidens biternata* has been used as a medicinal plant for a long time, there are only a few studies on biological activities. Bhakuni et al., (1969) reported that 50% ethanolic extract of *B. biternata* had no activity of antibacterial, hypoglycemic, antifungal, antiprotozoa, anticancer and no effect on respiration system. LD₅₀ value was 250 mg/kg body weight.

Up to now the chemical constituents of *B. biternata* are still unrevealed. It interests the author to investigate the chemical compounds in this plant for increasing information of chemistry and chemotaxonomy. This investigation deals with the isolation of chemical compounds from entire plant of *B. biternata* and the structural analysis by means of spectroscopy.