

VARIATIONS IN MORPHO-ANATOMICAL AND HISTO-CHEMICAL
CHARACTERISTICS OF THE LILAC TASSELFLOWER, *Emilia sonchifolia* LINN
(ASTERACEAE- SENECEONEAE) IN COASTAL AND
INLAND HABITATS

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APPROVAL SHEET

This thesis entitled: VARIATIONS IN MORPHO-ANATOMICAL AND HISTO-CHEMICAL CHARACTERISTICS OF *Emilia sonchifolia* LINN. (ASTERACEAE-SENECIONEAE) IN COASTAL AND INLAND HABITATS, prepared and submitted by DEXTER C. INOC in partial fulfillment of the requirements for the degree of MASTER OF SCIENCE IN BIOLOGY has been examined and is recommended for acceptance and approval for oral examination.

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ABSTRACT

Emilia sonchifolia is a common weed with pantropical distribution. It is found throughout the Philippines in open waste places, cultivated lands, in and about towns and settlements of low and medium altitudes. *E. sonchifolia* has been recognized as a plant with medicinal properties. Previous studies have shown that the extract of *E. sonchifolia* has both anti-inflammatory and antioxidant properties. Despite all of this, a morpho-anatomical and histo-chemical characterization of the lilac tasselflower, *Emilia sonchifolia* in the Philippines has not been done yet. This study focused on the morpho-anatomical and histo-chemical characterization of *E. sonchifolia* from coastal and inland habitats in Cebu, Philippines. The morpho-anatomical characteristics of *Emilia sonchifolia* from the coastal and inland habitats showed significant differences in terms of the length and width of the upper leaves, the length and width of the stems, length of the internodes and corolla length while there were no significant differences in terms of the length and width of the lower leaves, the number of internodes per plant and the root length. The epidermis of the stem was made up of one layer with uniseriate, non-glandular trichomes. The hypodermis is made up of two layers of collenchyma. The shape of the parenchyma cells was polygonal. The root had a single epidermis, narrow cortex and central stele. In a frontal view the epidermal cells of the leaf blade had slightly sinuous walls. This sinuosity was more evident on the abaxial epidermis surface. The anisocytic stomata occurred more frequently on the lower epidermis and were usually surrounded by three subsidiary cells. The organization of the mesophyll varied according to the different regions of the leaf blade. The flower had a polyporate pollen and an inferior ovary. Organs of *E. sonchifolia* namely the roots, stems, leaves, and flowers all tested positive for alkaloids. The organs mentioned above tested negative for leucoanthocyanins but all tested positive for γ -benzopyrone nucleus which means that it contains flavonoids.

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CHAPTER 1

INTRODUCTION

Emilia sonchifolia is also known as lilac tasselflower from the Family Asteraceae, Tribe Senecioneae. In the Philippines, it is known as tagulinaw (Tagalog), lamlampaka (Ilocano), and pisowa-pisowa (Bisaya). It is an annual herb, erect or often branched at the base, smooth or sparingly hairy, 10 to 60 cm tall, lower leaves deeply and irregularly pinnately or bluntly toothed; lobes nearly round, kidney-shaped, ovate, triangular-ovate or obovate, 4 to 16 cm long, 1 to 8 cm wide with narrowly winged petioles, upper leaves smaller than lower leaves, alternate, usually entire, sometimes coarsely dentate, sessile and somewhat clasping the main stem, inflorescence a terminal, involucrate flower head resembling a single flower, 12 to 14 mm long, 4 to 5 mm wide, urn-shaped, long-peduncled. This species is recognized by the sowthistle-like leaves, the long-peduncled, usually dichotomously branched inflorescence and the single ring of involucre bracts that are somewhat inflated below (Holm *et al.*, 1977). It is a common weed with pantropical distribution. It is found throughout the Philippines in open waste places, cultivated lands, in and about towns and settlements of low and medium altitudes. It prefers sunny or slightly shaded, and not-too-dry localities from sea level up to 3000 m altitude. A comprehensive study on the morpho-anatomical characters of the Philippine lilac tasselflower has not been done yet. In the Philippines where *Emilia sonchifolia* grows frequently, a detailed study of the plant will help in its taxonomic identification.

Emilia sonchifolia has been recognized as a plant with medicinal properties. Previous studies have shown that the extract of *E. sonchifolia* has both anti-inflammatory