

Leaf margin serration and its taxonomical significance in the genus *Hibiscus*

Márgenes foliares aserrados y su importancia taxonómica en el género *Hibiscus*

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Abstract. Types of leaf margin serration were investigated in ten species of the genus *Hibiscus*. Types and frequency of serration varied widely from species to species, from common to occasional to rare. Leaf serration is an important taxonomical feature in *Hibiscus*.

Keywords: *Hibiscus*; Serration types; Taxonomy.

Resumen. Se investigaron tipos de dentado en márgenes de hojas de diez especies del género *Hibiscus*. Los tipos y la frecuencia de dentado variaron ampliamente de una especie a otra, y de común a ocasional o rara. El dentado foliar es una característica taxonómica importante en *Hibiscus*.

Palabras clave: *Hibiscus*; Tipos de dentado; Taxonomía.

INTRODUCTION

Morphological features are important in the proper identification of species and formation of natural groups. Detailed general morphological features of *Hibiscus* have been investigated very little. The present investigation describes the diversity of serration types in *Hibiscus* about which there is practically no information. The literature review reveals that leaf margin serration and its taxonomy has been investigated in the genus *Abutilon* (Bhat, 1999).

MATERIALS AND METHODS

Live and herbarium specimens of *Hibiscus abelmoschus* L., *H. angulosus* Stud., *H. caesioides* Garcke, *H. canescens* Heyne, *H. cannabinus* L., *H. ficulneus* L., *H. furcatus* Foxb., *H. lunarifolius* Gray., *H. micranthus* L. and *H. mutabilis* L. were collected from different parts of India. The materials were cleared following the method of Mohan Ram & Nayyar (1978). Serration patterns were recorded from thirty leaves of each species. The characterizations of serration patterns followed Hickey (1973) and Hickey & Wolf (1975).

RESULTS

Serration types are determined by the shape of the basal side of the tooth vs. the shape of the apical side (Hickey, 1973). The leaf margin configuration of ten *Hibiscus* species investigated fall under all sixteen categories viz. convex convex (CC), convex straight (CS), convex concave (CCe), convex acute (CA),

straight convex (SC), straight straight (SS), straight concave (SCe), straight acute (SA), concave convex (CeC), concave straight (CeS), concave concave (CeCe), concave acute (CeA), acute convex (Ac), acute straight (AS), acute concave (Ace), and acute acute (AA). The common serration types observed were straight straight (SS) and concave convex (CeC) (Table 1).

DISCUSSION

Serrations are pointed, with their axes inclined (i.e. at an oblique angle) to the trend (tangent) of the margin (Hickey, 1973). Out of sixteen leaf margin configurations recorded in dicotyledons (Hickey, 1973), all sixteen leaf margin configurations were observed in the genus *Hibiscus*. According to Hickey (1973), families and genera are often highly consistent in possessing one or two types of serration. The present observations in the genus *Hibiscus* agree with determinations of Hickey (1973). Straight Straight (SS) and concave convex (CeC) serration were prominent and consistent in the group of species investigated, while Straight Straight (SS) was observed in almost all of them. These characters are of great taxonomic importance in the identification of plants at the species level.

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Table 1. Serration types in the genus *Hibiscus*.
Tabla 1. Tipos de bordes aserrados en el género *Hibiscus*.

No	Taxa	CC	CS	CCe	CA	SC	SS	SCe	SA	CeC	CeS	CeCe	CeA	AC	AS	ACe	AA
1	<i>H. abelmoschus</i>	c	-	o	-	-	c	-	-	o	-	r	-	r	-	-	-
2	<i>H. angulosus</i>	-	-	-	r	-	c	r	-	o	-	-	o	-	c	-	-
3	<i>H. caesioides</i>	-	-	-	-	-	o	-	-	-	-	-	-	c	-	c	o
4	<i>H. canescens</i>	-	-	-	-	-	o	-	c	r	-	-	o	-	-	-	c
5	<i>H. cannabinus</i>	-	c	-	-	c	r	-	-	o	-	-	-	-	-	-	o
6	<i>H. ficulneus</i>	c	-	-	-	o	r	-	-	c	o	-	r	-	-	-	-
7	<i>H. furcatus</i>	c	-	-	-	-	o	-	-	c	-	-	r	-	-	-	-
8	<i>H. lunarifolius</i>	o	-	c	-	-	r	-	-	-	c	-	r	-	o	-	-
9	<i>H. micranthus</i>	-	r	r	-	-	o	-	c	r	-	-	o	-	-	-	c
10	<i>H. mutabilis</i>	c	o	-	r	-	c	o	-	-	-	r	-	-	-	-	-

CC = convex convex; CS = convex straight; CCe = convex concave; CA = convex acute; SC = straight convex; SS = straight straight; SCe = straight concave; SA = straight acute; CeC = concave convex; CeS = concave straight; CeCe = concave concave; CeA = concave acute; Ac = acute convex; AS = acute straight; ACe = acute concave; AA = acute acute; c = common; o = occasional; r = rare; - = not observed.

CC = convexo convexo; CS = convexo recto; CCe = convexo cóncavo; CA = convexo agudo; SC = recto convexo; SS = recto recto; SCe = recto cóncavo; SA = recto agudo; CeC = cóncavo convexo; CeS = cóncavo recto; CeCe = cóncavo cóncavo; CeA = cóncavo agudo; Ac = agudo convexo; AS = agudo recto; ACe = agudo cóncavo; AA = agudo agudo; c = común; o = ocasional; r = raro; - = no observado.

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