

# ETHNOBOTANY OF THE WILD MEXICAN CUCURBITACEAE<sup>1</sup>

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ETNOBOTÁNICA DE ESPECIES MEXICANAS SILVESTRES DE LA FAMILIA CUCURBITACEAE. *Este artículo presenta los resultados de una investigación etnobotánica de las especies mexicanas silvestres de la familia Cucurbitaceae. Las fuentes de información fueron el trabajo de campo en diferentes regiones de México, así como también ejemplares de herbario y referencias bibliográficas. Un total de 34 especies silvestres (26.5% de las 128 especies silvestres mexicanas) de Cucurbitaceae son reportadas como útiles en 24 de los 32 estados de México. Todas las especies son conocidas por uno o más nombres locales y 23 de ellas reciben nombres en lenguas nativas. Los usos registrados abarcan un total de doce categorías, incluyendo medicina humana (18), alimento (13), sustituto de jabón (12), forraje (4), juguete (3), bebidas (2), ornato (2), insecticidas (1), medicina animal (1), artesanías (2), contenedores (1) y ceremonial (1), y algunos de los usos parecen remontarse a las épocas pre-Hispánica y colonial.*

**Key Words:** Cucurbitaceae; wild useful plants; ethnobotany; México.

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The Cucurbitaceae have an important cultural and economic role among many societies. Some species are among the plants first domesticated by humans and several are staple crops. According to Jeffrey (1990), this family includes 118 genera and 825 species, of which 142 taxa, including species and infraspecific taxa (14 cultivated and 128 wild) grow in Mexico; nearly half of these taxa are endemic to this country, and some are wild relatives of cultivated species (Lira et al. 1998).

Numerous studies have been devoted to the taxonomy, ethnobotany, and other aspects of the domesticated species of the family (Andres 1990; Arora and Nayar 1984; Bailey 1929; Bukasov 1981; Chakravarty 1990; Decker-Walters 1990; Esquinas-Alcazar and Gulick 1983; Lira 1992, 1995a, 1996; Lira and Bye 1996; Lira and Mon-

tes-Hernández 1992; Merrick 1990, 1991; Nee 1990; Newstrom 1990, 1991; Okoli 1984; Poterfield 1943, 1951, 1955; Schultes 1990; Whitaker 1990; Whitaker and Davis 1962; Yang and Walters 1992; Zizumbo-Villarreal 1986). However, only a few have taken into account the economic and cultural importance and potential of the wild species growing in Mexico (Alcorn 1984; Berlin, Breedlove, and Raven 1974; Caballero-Salas 1984; Casas, Viveros, and Caballero 1994; Lira 1988, 1995a,b, 1996; Lira and Casas 1998; Martin et al. 1998; Roys 1931). This paper presents the results of a survey on the ethnobotany of the wild species of Mexican Cucurbitaceae.

## METHODS AND SOURCES OF INFORMATION

The survey was conducted in different parts of Mexico, mostly in the Yucatán Peninsula, and the states of Oaxaca and Chiapas, where a rich

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ethnobotanical lore still exists. A large number of informants, including farmers, housewives, and healers, were interviewed. Voucher specimens were collected during interviews, assigned a *Lira et al.* collection number, and deposited in the National Herbarium (MEXU). Field research was complemented by data from herbarium specimens deposited in the main Mexican herbaria (CICY, ENCB, IEB, IZTA, MEXU, XAL) and from other countries (BH, F, GH, K, MICH, MO, NY, UC, US, USF, TEX).

## RESULTS

Ethnobotanical information was obtained for a total of 34 wild species of Cucurbitaceae in Mexico. The information is presented for each species, and a summary is presented in Tables 1 and 2.

### *Apodanthera aspera* Cogn. and *A. undulata* A. Gray

The Mexican species of *Apodanthera* are characteristic of arid and semiarid environments (Cogniaux 1881, 1916). Taxonomic limits of these species are still unclear and the names used herein may change. *Apodanthera aspera* is endemic to the states of Puebla and Oaxaca in central Mexico (Lira et al. 1998; Lira and Rodríguez 1999) and particularly abundant in the Tehuacán-Cuicatlán Valley, where it grows in crop fields and around urban areas (Lira and Rodríguez 1999). In this region it is known as *meloncillo*; the seeds are eaten roasted (Lira & Soto 1093, MEXU; Lira and Rodríguez 1999).

*Apodanthera undulata* has a wider distribution, ranging from southern United States through central Mexico (Cogniaux 1881, 1916; Lira et al. 1998), and has different local names and uses along its range. In the State of Guanajuato, it is locally known as *calabaza hedionda* (stinky pumpkin) (Laborde CU 0765, Germplasm collection of INIFAP, Celaya, Guanajuato); in the State of Jalisco it is known as *calabaza loca* (crazy pumpkin) and *calabaza amarga* (bitter pumpkin) (Lira & Brunneau 847, MEXU; Montes & Merrick CU 0760, Germplasm collection at INIFAP, Celaya, Guanajuato). In Guanajuato the mashed pulp of the fruit is used to treat urinary ailments; in Jalisco and Zacatecas the seeds are eaten roasted (Merrick 1991). This use is particularly important in Zacatecas city, where street vendors sell roasted

seeds by the bag (Ramos & Martínez 1175, MEXU).

Roasting the seeds of *Apodanthera* for human consumption is an ancient practice in Mexico. Seeds of these plants have been found associated with archaeological remains in caves of the Tehuacán Valley in Puebla and Guila Naquitz in Oaxaca (Cutler and Whitaker 1967). The seeds were identified as belonging to *A. bureavii* Cogn, a species described from a region close to the Tehuacán Valley and Guila Naquitz that has been treated in some floristics papers as conspecific with *A. aspera* (Lira and Rodríguez 1999). According to Bemis et al. (1967a), the seeds of *Apodanthera* have a high nutritional value. These authors reported that the seeds of *A. undulata* contain 21.2–29.4% fat and 62.1–79.3% protein.

### *Cayaponia attenuata* (Hook. & Arn.) Cogn. and *Cayaponia racemosa* (Mill.) Cogn.

These two species have different distribution ranges. *Cayaponia attenuata* is found in Mexico and Central America as well as in Jamaica; *C. racemosa* is more widely distributed, ranging from southern Florida and Mexico to northern South America and the Antilles (Dieterle 1976; Jeffrey and Trujillo 1992; Lira et al. 1998; Nee 1993; Wunderlin 1978). In the State of Chiapas in southern Mexico, *C. attenuata* is known as *jaboncillo* and is used as a soap substitute for washing clothes (Lira et al. 1020, MEXU). In El Salvador this species is called *Tamapaz* or *Tamagaz* and is believed to be a remedy for snake bite (Schultes 1990; Von Reis and Lipp 1982).

*Cayaponia racemosa*, has various common names and uses in different parts of México. This species is known as *estropajo de ropa* in Oaxaca and the leaves and fruits are used as an insecticide against fleas (Nereyda & Heinrich 255, MEXU). In Chiapas, it is known as *chillo* or *bolita*, and the fruits are used as a soap substitute (Lira et al. 936, 957A, 1010, MEXU). In the Yucatán Peninsula, where it has been an important plant resource for the Maya people, *C. racemosa* is known as *ta-keh* or *xta'kej* (deer excrement) as well as *sandía chica* (small watermelon) or *sandía de ratón* (mouse watermelon) (Chan 166, CICY, Chavelas 320, Uacán 3110, 3556, MEXU; Lira 1988). According to Roys (1931), the ancient Maya may have used *C. racemosa* along with other plants as a remedy

TABLE 1. COMMON NAMES AND USES OF THE WILD MEXICAN CUCURBITACEAE.

Species	Region/state	Common name(s)	Use(s)	Plant part(s) used	Source of information
<i>Apodanthera aspera</i>	Tehuacán-Cuicatlán Valley	Meloncillo	Food	Seeds	Lira & Soto 1093, MEXU; Lira & Rodriguez (1999)
<i>A. undulata</i>	Guajuato Jalisco/Zacatecas	Calabaza hedeonda Calabaza amarga, calabaza loca	Medicinal Food	Fruit pulp Seeds	Laborde CU 0765 Lira & Brunneau 847, Ramos & Martínez 1175, MEXU, Montes & Merrick CU 0760
<i>Cayaponia attenuata</i>	Chiapas	Jaboncillo	Soap substitute	Whole plant	Lira et al. 1020, MEXU
<i>C. racemosa</i>	Chiapas	Bolita, chilillo	Soap substitute	Whole plant	Lira et al. 936, 957A, 1010, MEXU
	Oaxaca	Estropajo de ropa	Insecticide	Leaves and fruits	Nereyda & Heinrich 255, MEXU
	Peninsula of Yucatán	Sandía chica, sandía de ratón, ta-keh, xta'kej	Medicinal	Whole plant, leaves and fruits	Chan 166, CICY, Chavelas 320, Ucam 3110, 3556, MEXU;
<i>Cionoscycos excisis</i>	Peninsula of Yucatán	Akil kaax, chayote xiw, pu pu taxi, suput, xka'saa, xk'uum pech	Birds food, toxic	Fruits	Lira (1988)
<i>Cucumis anguria</i>	Peninsula of Yucatán	Jaban k'aan, sandía chom, sandía de zopilote, u jab-plat tsil kaax	No data	No data	Ucán 195, Flores 9699, Narváez 113, CICY, XAL; Lira (1988)
	Rio Mayo, Sonora Tehuacán-Cuicatlán Valley	Melón de coyote, Hálu Chayotillo	Food, medicinal Fodder	Fruits and whole plant Whole plant	Gaumer 117, F. Barrera, Barrera, & Lopez Franco (1976), Lira (1988), Roys (1931), Standley (1930)
	Veracruz	Meloncillo	Food	Fruits	Martin et al. (1998) Valiente 91, MEXU
	Tamaulipas	Pepinillo	Food	Fruits	Nee et al. 19487, MEXU; Nee (1993)
	Several regions of México	No data in reference	Medicinal	Roots	Lira et al. 1484, MEXU Altschul (1973) in Schultes (1990)
<i>Cucurbita argyrosperma</i> ssp. <i>sororia</i>	Chiapas	Calabaza de caballo, calabaza de burro, coloquinto	Handicrafts Medicinal	Fruit shell Fruits	Andres & Nee 148, BH, MEXU, NY, Lira et al. 944, 1292, 1294, MEXU
	Colima/Jalisco	Aguaxtle, aguachichi, aguichichi, tolenche, tolonche, tolonchi	Fodder Beverage Medicinal	Fruits Seeds Fruits	Merrick (1991)

TABLE 1. CONTINUED.

Species	Region/state	Common name(s)	Use(s)	Plant part(s) used	Source of information
	Guerrero/Michoacán	Calabaza de coyote, calabacilla, coyote, chamaco, chicayota	Food Soup substitute	Seeds Fruits	<i>Andres &amp; Wyland</i> 50, BH, F, 53, BH, NY, US, <i>Germán et al.</i> , 247, MEXU, <i>Hernández X.</i> 3204, 3208, 3210, 3229, 3295, BH, <i>Hinton et al.</i> 5491, GH, K, 7279, K, NY, US, <i>Merrick CU</i> 675, CU 677, CU 678; <i>Merrick (1991) Frei</i> 224, <i>Lira &amp; Soto</i> 1233, 1235, 1241, 1244, 1246, 1248, 1250, MEXU
<i>C. foetidissima</i>	Oaxaca	Calabaza amarga Guedu laac Tecomachichi	Food Medicinal Soup substitute	Seeds Fruits Fruits	
	Chihuahua	Aala, alidimai, ara chiki, aiski arisi, calabacilla, calabacilla de burro	Medicinal Soup substitute Beverage	Leaves and roots Roots Seeds	<i>Bye</i> 2555, 5443, 5472, 6281, GH, <i>López 2, GH, Palmer s.n.</i> , GH, <i>Pennington</i> 376, 477, TEX; <i>Merrick (1991) Gómez</i> 123, ENCB, <i>González</i> 36, XAL
	Coahuila/Nuevo León	Calabacilla loca, calabaza silvestre, chichicamole	Soup substitute	Roots	
	Hidalgo	Calabaza del diablo	Medicinal	Seeds	<i>Merrick (1991)</i>
<i>C. fraterna</i>	Tamaulipas	Calabacilla loca, calabacilla, calabaza amargosa	Medicinal Food Fodder	Fruits Immature fruits and seeds Mature fruits	<i>Nee &amp; Calzada</i> 33203, BH, MEXU, MO, NY; <i>Rodríguez &amp; Lira</i> 31B, MEXU; <i>Rodríguez (1995)</i> , <i>Rodríguez &amp; Lira (1992)</i>
<i>C. lundelliana</i>	Peninsula of Yucatán	Calabacita, calabacita de monte, xbon dzek, xburut	Soup substitute Container	Fruit pulp Fruit shell	<i>Andres &amp; Nee</i> 165, BH, NY, TEX, US, 169, BH, NY, TEX, US, 170, BH, NY, <i>Flores s.n.</i> , F; <i>Lira (1988)</i> , <i>Lira, Andres, &amp; Nee (1995)</i> , <i>Zizumbo-Villarreal (1986)</i>
<i>C. okeechobeensis</i> ssp. <i>Martinezii</i>	Chiapas	No data	Ceremonial Medicinal	Hollowed fruit Fruit pulp	<i>Andres et al.</i> 134, BH, MO, NY, TEX, US, <i>Andres &amp; Nee</i> 152, BH, GH, K, MEXU, MICH, MO, NY, TEX, US, XAL
	Querétaro	Calabacilla	No data	No data	<i>Lira et al.</i> 1360, IEB

TABLE 1. CONTINUED.

Species	Region/state	Common name(s)	Use(s)	Plant part(s) used	Source of information
	San Luis Potosí	Calabacilla, tsoop	Soap substitute	Fruit	<i>Alcorn</i> 3027, MEXU, 3355, MEXU, TEX
	Veracruz	Calabacilla de monte, moriche, morcheta	Soap substitute Rattle (Toy) Medicinal	Fruit	<i>Castillo et al.</i> 1919, F, XAL, Kelly 253, BH, Nee & Taylor 29355, BH, F, NY, XAL, Nee & Andres 32106, BH, K, NY, TEX, UC, USF; Nee (1993) <i>Lira &amp; Soto</i> 1090A, MEXU
<i>C. pedatifolia</i>	Tehuacán-Cuicatlán Valley	Calabacilla, torito	Soap substitute	Fruit	
<i>C. scabridifolia</i>	Tamaulipas	Calabacita	Toy	Fruit	<i>Andres &amp; Wyland</i> 49, BH
<i>Cyclanthera dissecta</i>	Guerrero	Chayotillo	Food Toy	Tender leaves and fruits Mature fruit	<i>Wagenbreth</i> 236, 379, MEXU, <i>Viveros &amp; Casas</i> 278, ENCB, MEXU
	México State	Chayotillo	No data	No data	<i>Hinton</i> 6866, 8465, 8577, ENCB
	Sierra Norte de Puebla	Aca'hua, macuilquilitl	Food	Leaves	<i>Villalobos</i> 258, MEXU; <i>Lira &amp; Casas</i> (1998), Villalobos (1994)
<i>C. integrifolia</i>	Chiapas	Chayote de ratón, mail pox, polotz, polot'z ch'epak, yakil chupak, chupak	Soap substitute Medicinal	Roots Fruit	<i>Shilom Ton</i> 4771, 8484, López & Martínez 37, 169, 171, Santiz 96, Gómez 406, MEXU
<i>C. langaei</i>	Chiapas Guerrero/Oaxaca	Polot'z ch'opak Yao-mbo hubo, yao-mbo maratsi, yuva xindi kava	Soap substitute Food	Roots Tender leaves	<i>Shilom Ton</i> 7973, 9162, MEXU <i>De Avila</i> 275, <i>Wagenbreth</i> 184, 613, MEXU
	Hidalgo Jalisco	Macuilquilitl No data in specimen	Food Consumed by cattle	Tender leaves Whole plant	<i>Villa</i> 89, MEXU <i>Gutizar</i> 527, MEXU
	Sierra Norte de Puebla	Aca'hua, macuilquilitl	Food	Leaves	<i>Villalobos</i> 457-3217, MEXU; <i>Lira &amp; Casas</i> (1998), Villalobos (1994)
<i>C. ribiflora</i>	Sierra Norte de Puebla	Nexcolo, nexcolom	Food	Leaves and fruits	<i>Villalobos</i> 80, 456, MEXU; <i>Lira &amp; Casas</i> (1998), Villalobos (1994)

TABLE 1. CONTINUED.

Species	Region/state	Common name(s)	Use(s)	Plant part(s) used	Source of information
<i>Doyerea emetocathartica</i>	Peninsula of Yucatán	Ciz can, kis kaan, kuum ak, tuch tunich, xkabax kaax, xmakal kaan, xmuk kaan, xput kaan, xta kaan, ya'ax kani	Medicinal	Whole plant, roots and/or fruits	Lira (1988)
<i>Hanburia mexicana</i>	Veracruz Oaxaca	Chayotillo, erizo de monte Chayote de mono, chayote silvestre	Food No data	Fruit No data	Castillo <i>et al.</i> 145; Nee (1993) Osorio 18, MEXU; Lira & Torres (1991)
<i>Ibervillea millspaughii</i>	Peninsula of Yucatán	Xtukaamil, tu kaani, xtukaan-ul, ka'ultum	Medicinal	Roots	Ucán 512 Flores & Lira 9106, CICY, XAL, Lira & Ucán 514, MEXU, NY; Lira (1988), Lira & Casas (1998)
<i>I. sonorae</i>	Baja California Sonora	Limón-coyote Guareque, guarequi, choya guani	No data Medicinal	No data Roots	León 2865, MEXU Lira <i>et al.</i> 1441, IEB, IZTA, MEXU; Martín <i>et al.</i> (1998)
<i>Luffa operculata</i> <i>Melothria pendula</i>	Chipas Chiapas	Esponja Esponjuela, mayil ak	Medicinal Medicinal	No data Fruit	Matuda 17254, MEXU Santiz 58, Lira <i>et al.</i> 962, MEXU
	Guerrero	Chilacayotito, miná na, sandi-ita, tintuyu vali, tomatito	Food	Fruit, stems, leaves	Viveros & Casas 200, 277, <i>s.n.</i> , Wagenbreth 748, MEXU; Lira & Casas (1998)
	Oaxaca	Sandía de ratón, pentocoz	Food	Fruit	Hernández 1081, Torres & Martínez 7368, MEXU
	Peninsula of Yucatán	Meloncito, sandía tuul, sandía kaan, sandía xtulub, xtulub, sandía xiw	Food Medicinal	Fruit Stems, leaves, fruits	Chán 125, 668, 915, 1100, May 31, 182, 200, Narváez 395, Puch 629, 701, Sanabria 267, Ucan 587, 963, 1625, CICY, MEXU; Lira (1988), Lira & Casas (1998)
	Querétaro	No data in specimen	Food	No data	González 206, IEB, MEXU
	Sierra Norte de Puebla	Sandía de pájaro, sandía chiquita, sandía tzitzi, siña spuun	Food	Fruit	Basurto & Patrón 59, Villalobos, 43, 215, 268, 291, MEXU; Lira & Casas (1989), Villalobos (1994)
	San Luis Potosí	Baleeyail an t'eel, Baleeyail rata	Food Medicinal	Fruit, plant	Alcorn 1691, 3243, Lira <i>et al.</i> 1469, MEXU

TABLE 1. CONTINUED.

Species	Region/state	Common name(s)	Use(s)	Plant part(s) used	Source of information
<i>Microsechium helleri</i>	Veracruz	Sandía de ratón	Food	Fruit	Veldzquez 138, MEXU
	México State	Chayotillo, chicamole, sana-cochi	Soap substitute Ornamental	Roots Plant	Lira & Soto 1077, Matuda 21299, Juárez 5, MEXU
	Oaxaca	Amole de bejuco, tidaca	Soap substitute	Roots	Gentry 12059, Lira & Soto 1117, MEXU
<i>Momordica charantia</i>	Puebla	Chicamole	Soap substitute	Roots	Tenorio 7587, MEXU
	Chiapas	Granadilla	Food	Seed aril	Lira & Reyes 1275, MEXU
	Michoacán	Avellana	Food	Flowers, fruit	Guerrero et al. 6, MEXU
	Oaxaca	Balsamina, cundeamor, grana-dilla, manzanilla	Food Medicinal	Fruit, seed aril Whole plant	Nereyda & Heinrich GUI7, Rohan 10, Zizumbo & Colunga 140, Castrejón & Concepción 66, 218, Lira & Soto 1177, MEXU
Peninsula of Yucatán		Cochinito, cundeamor, chiquita, anacahuíta, chorizo, flor de amor, yakunax aj, yakunax ak	Food	Seed aril	Lira (1988)
			Food Medicinal	Fruit, leaves, whole plant	
Sinaloa		Balsamina, pepin, pepino, pepinillo de monte	Food Medicinal, soap substitute	Seed aril Whole plant	Gentry 11059, González 5668, Medina 1987, Shapiro 30, MEXU
Tabasco		Cundeamor	Food	Seed aril	Martínez et al. MA 1964, MEXU
Veracruz		Cundeamor, guadalupana, melón de ratón, papayito, pepino cimarrón	Aphrodisiac	Whole plant	Ortega 443, MEXU, XAL; Nee (1993)
			Food	Seed aril	
<i>Parasicyos dieterleae</i>	Oaxaca	Chayotillo, chi 1 acayotito, tindú	Medicinal	Leaves, roots	Lira & Soto 1103, MEXU; Lira & Torres (1991)
			Food	Fruit	Andres & J. Wyland 23, K, NY
<i>Peponopsis adhaerens</i>	Puebla Querétaro	No data in specimen Calabacilla	Soap substitute	Fruit	Lira et al. 1352, 1359, IEB, IZTA, MEXU
			Food	No data	Alcorn C08, TEX
<i>Rytidostylis gracilis</i>	San Luis Potosí Chiapas Guerrero Oaxaca	Tsoopil uthu Chayotillo	Medicinal	Tender tips of vine	Martínez-Calderón 288, Soule & Brunner 2389, Wagenbreth 382, MEXU
			Food	Fruit	Martin et al. (1998), R.
<i>Schizocarpum palmeri</i>	Rio Mayo, Sonora,	No data provided in reference	Handicraft	Fruit	



TABLE 1. CONTINUED.

Species	Region/state	Common name(s)	Use(s)	Plant part(s) used	Source of information
<i>Sechitopsis triquetra</i>	Mexico City, Guerrero Guerrero	No data Chayotillo, marranito	Handicraft Fodder	Fruit Whole plant	Lira (unpublished data) Lira & Soto 1087, 1309, 1314, MEXU
<i>Sechium compositum</i>	Michoacán, Morelos, Oaxaca Chiapas	Chayotillo Chayote de caballo, husquil de cochi, huisquil de monte, xmasil, xmasin	No data Animal medicine, soap substitute	No data Fruit Roots	Aguirre 89, Lira & Soto 1145, Torres 921, MEXU Matuda 2151 F, GH, K, MEXU; NY, 17047, MEXU, Lira et al. 960, 1282, 1289, MEXU; Lira (1955a, 1996), News-trom (1986) Martínez-Calderón 187, GH, US
<i>Sicydium tannifolium</i>	Oaxaca	Gin man	No data	No data	
	Peninsula of Yucatán	Chak mots	Medicinal	Roots	Lira & Uacán 636, MEXU; Lira (1988)
	Querétaro/San Luis Potosí	Aisam an wako	No data	No data	Alcorn 1960, TEX, Fernández-Nava 4253, ENCB
	Tabasco	Sandía de culebra, sandía de rata	No data	No data	González & Pérez P-556, ENCB, MICH, XAL, 4159, ENCB
<i>Sicyos longisepalus</i> <i>S. parviflorus</i>	Chiapas Oaxaca	Ch'uma te'ch'o' Chayotillo, lati-adi-ná	Medicinal Food	Leaves and flowers Tender tips of vine	Santiz 237, 1066, MEXU Lira & Soto 1102, 1141, 1156, MEXU; Lira & Casas (1998)



TABLE 2. COMPARISON BETWEEN SPECIES RICHNESS AND SPECIES USED IN THE 32 MEXICAN STATES.

State	Species richness	Species used
Oaxaca	53	11
Chiapas	50	9
Jalisco	45	3
Michoacán	42	2
Veracruz	40	5
Guerrero	35	6
Sinaloa	32	1
Puebla	31	9
Nayarit	31	0
Querétaro	29	3
México	27	1
Sonora	26	3
San Luis Potosí	22	1
Hidalgo	22	2
Morelos	20	0
Guanajuato	20	1
Colima	19	1
Tamaulipas	16	3
Durango	15	0
Baja California	15	0
Chihuahua	15	1
Campeche	15	4
Baja California Sur	13	0
Zacatecas	12	1
Nuevo León	12	1
Yucatán	12	7
Quintana Roo	12	6
Distrito Federal	10	0
Tabasco	8	1
Coahuila	7	1
Aguascalientes	6	0
Tlaxcala	5	0

for bee sting, and today it is widely used for medicinal purposes. Lira (1988) reported that the leaves macerated in alcohol or prepared as an infusion are used topically against skin diseases; the leaves and fruits freshly mashed are employed also topically against skin ailments; and an infusion of the leaves or the entire plant is reported to cure wounds, soreness, and colds. In contrast, in El Salvador this species is said to be toxic, especially to cattle (Altschul 1973; Schultes 1990).

*Cionosicyos excisus* (Griseb.) C. Jeffrey

This species is found in Chiapas and the Yucatán Peninsula in southern México, as well as in Guatemala and Cuba (Dieterle 1976; Lira

1988; Lira et al. 1998). In Yucatán Maya this species is known as *suput*, *xka'saa*, *pu pu taxi* (all of them of unknown meaning), *xk'uum pech* (garrapata [= tick] squash), *chayote xiw* (herb of chayote), and *akil kaax* (thin vine from the forest) (Lira 1988). In some areas of the Yucatán Peninsula it is believed to be toxic (*Ucan 2253*, CICY, XAL), in other areas it is considered as bird feed (*Ucán 195*, *Flores 9699*, *Narváez 113*, CICY, XAL; Lira 1988).

*Cucumis anguria* L.

This species is native to Africa and was introduced into Mexico probably in the early Spanish colonial period (Kirkbride 1989). In the Río Mayo region this species is called *melón de coyote* and *hálu* (Mayo), and the young tender and bitter fruits are eaten or used to make a decoction of the plant used to alleviate stomach ailments (Martin et al. 1998). In the Tehuacán-Cuicatlán Valley, *C. anguria* is known as *chayotillo* and is used as fodder for goats (*Valiente 91*, MEXU); in the states of Veracruz and Tamaulipas it is named *meloncillo* and *pepinillo* respectively, and the fruits are eaten cooked with chili sauce (*Lira et al. 1484*, *Nee et al. 19487*, MEXU; Nee 1993). In other regions of Mexico a decoction of the root is valued as a remedy for stomach trouble (Altschul 1973; Schultes 1990). Although no uses are reported for the Yucatán Peninsula, this species is known in Spanish as *sandía chom* or *sandía de zopilote* (turkey bizzard watermelon), and in Mayan as *u jabplat tsil kaax* (wild dishwasher) or *jaban k'aan* (wild vine) (*Gaumer 117*, F; Barrera, Barrera, and Lopez Franco 1976; Lira 1988; Roys 1931; Standley 1930).

*Cucurbita argyrosperma* Huber ssp. *sororia* (L.H. Bailey) Merrick & Bates

Recent studies suggest that this taxon is the closest wild relative of the cultivated species *Cucurbita argyrosperma* ssp. *argyrosperma* (Merrick 1990, 1991; Merrick and Bates 1989). It occurs from Sonora and Tamaulipas in northern Mexico, through Nicaragua in Central America, except the Yucatán Peninsula (Bailey 1943; Lira 1988; Lira, Andres, and Nee 1995; Merrick 1990, 1991; Nee 1990). This plant is widely utilized in Mexico. In the states of Colima and Jalisco it is known as *calabacilla*, as well as several names derived from the Nahuatl language, such as *agualaxtle*, *aguachichi*, *aguichichi*, *tolonchi*,

*tololonche*, *tolonchi*, and *tolenche*. In these states the seeds are ground and mixed with water to prepare a beverage called *agua fresca*, which is said to have a purifying effect (Merrick 1991). In Jalisco the pulp of the fruit is used as a remedy against *sarna* (mange) and the seeds are used for the treatment of liver and kidney diseases. This last medicinal use is common in this region and it is possible to find seeds of this plant being sold in local markets. In Chiapas it is called *calabaza de caballo* (horse pumpkin), *calabaza de burro* (donkey pumpkin), and *col-quinto*. In that state fruit shells are used for making handicrafts, and an infusion of the fruits is employed as a remedy for acne; additionally, local people say that horses and donkeys eat the fruits (Andres & Nee 148, BH, MEXU, NY; Lira et al. 944, 1292, 1294, MEXU).

In the states of Guerrero and Michoacán this species is named *chamaco*, *calabacilla*, *calabaza de coyote*, or *coyote*, as well as *chicayota*, which is another word derived from the Nahuatl language. In Guerrero the seeds (and rarely the fruits) are eaten fresh after washing them; in Michoacán the fruits are used as a soap substitute (Andres & Wyland 50, BH, F, 53, BH, NY, US, Germán et al., 247, MEXU, Hernández X. 3204, 3208, 3210, 3229, 3295, BH, Hinton et al. 5491, GH, K, 7279, K, NY, US, Merrick CU 675, CU 677, CU 678, germplasm collections at INIFAP, Celaya, Guanajuato; Merrick 1991). In Oaxaca it is known in Spanish as *calabaza amarga* (bitter gourd), in Nahuatl as *tecomachichi*, and in Zapotec as *guedu laac*. In that state the fruits are used for healing wounds, as a soap substitute, and sometimes the seeds are eaten roasted (Frei 224, Lira & Soto 1233, 1235, 1241, 1244, 1246, 1248, 1250, MEXU). In regard to the nutritional value of the seeds, Bemis et al. (1967b) reported them as having an oil content of up to 34.5%.

#### *Cucurbita foetidissima* H.B.K.

This perennial species is widely distributed in the arid lands of the United States and Mexico. It is named in Spanish *calabacilla* (Chihuahua and Hidalgo), *calabacilla de burro* (Chihuahua), *chichicamole* (Coahuila), *calabacilla loca* or *calabaza silvestre* (wild squash) (Coahuila and Nuevo León), and *calabaza del diablo* (devil's squash) (Hidalgo). In the State of Chihuahua it is also known in Pima as *aala*, in Tepehuan as *alidimai*, and in Tarahumar as *ara chiki* or *aisiki arisi*. In this state an infusion of leaves and roots

are used a remedy for stomach illness and the crushed roots alone may be used in baths as a febrifuge and in infusions as an emetic or against headaches, as well as a soap substitute (Bye 2555, 5443, 5472, 6281, GH, López 2, Palmer s.n., GH, Pennington 376, 477, TEX; Merrick 1991); this latter use is also common in Coahuila and Nuevo León (González 36, XAL, Gómez 123, ENCB). Additionally, in Chihuahua the seeds are washed and used to prepare a refreshing beverage, and in Hidalgo they are ground and mixed with water to alleviate pain when urinating (Merrick 1991). This species is considered to have great potential as a new crop in areas with extreme drought. Gathman and Bemis (1990) reported 30.4% oil and 35.4% protein in the seeds, and 52% starch in the roots.

#### *Cucurbita fraterna* L.H. Bailey

The geographic distribution of this species is restricted to only a few localities in the states of Tamaulipas and Nuevo León, where it grows as a weed in maize fields (Andres 1987a; Rodríguez 1995). In Tamaulipas this species is known as *calabacilla*, *calabacilla loca*, and *calabaza amargosa*. In that state the fruits are used as a remedy for hepatic and gastrointestinal diseases. The immature fruits and seeds are eaten, and the mature fruits are used as fodder (Rodríguez & Lira 31B, MEXU; Rodríguez 1995). This species is an important genetic resource for breeders because it is likely the closest wild relative of *Cucurbita pepo* ssp. *pepo* (Andres 1987a; Bailey 1943; Lira, Andres, and Nee 1995; Nee 1990; Rodríguez 1995). Local farmers report natural crossing between *C. fraterna* and its cultivated relatives which results in the production of some bitter fruits by the cultivated plants. Because of this, farmers weed out individuals of *C. fraterna*, although this practice has not had much impact—the species is still abundant in crop fields and secondary vegetation.

Local people reported that when growing in cultivated fields, *C. fraterna* resists the attack of pests, whereas those individuals of the cultivated species, *C. argyrosperma* ssp. *argyrosperma* and *C. moschata* are affected (Nee & Calzada 33203, BH, MEXU, MO, NY; Rodríguez 1995). Pest resistance in *C. fraterna* could be significant for plant breeding in cucurbits in general, because this species is able to breed not only with close relatives such as *C. pepo* ssp. *pepo* and *C. pepo* ssp. *texana* but also with more dis-

tant relatives such as *C. argyrosperma* ssp. *argyrosperma* (Lira, Andres, and Nee 1995; Rodríguez 1995; Wilson, Lira, and Rodríguez 1994).

*Cucurbita lundelliana* L.H. Bailey

This species ranges from southern Mexico through Nicaragua (Bailey 1943; Lira 1988; Lira, Andres, and Nee 1995). In the Yucatán Peninsula it is named in Spanish *calabacita* or *calabacita de monte*, and in Maya *xbon dzek* or *xburut*. In the State of Yucatán, the fruit pulp is used as a soap substitute, and the shells are employed as containers (Andres & Nee 165, BH, NY, TEX, US, 169, BH, NY, TEX, US, 170, BH, NY, Flores s.n., F; Lira 1988; Lira, Andres, and Nee 1995; Zizumbo-Villarreal 1986).

*Cucurbita okechobeensis* (J.K. Small)  
L.H. Bailey spp. *martinezii* (L.H. Bailey)  
Walters & Decker-Walters

This taxon occurs from southern Tamaulipas, eastern San Luis Potosi, through Puebla, part of Veracruz, north of Oaxaca and Chiapas, and includes the cucurbits known until recently as *Cucurbita martinezii* L.H. Bailey (Bailey 1943; Lira, Andres, and Nee 1995; Walters and Decker-Walters 1993). In Querétaro, San Luis Potosi, and Veracruz it is known in Spanish as *calabacilla*. In Veracruz it is also known in Spanish as *calabacilla de monte*, *moriche*, and *morcheta*, and in San Luis Potosi as *tsoop* in Tenek (Huastec); in the latter two states the pulp of the fruits is used as a soap substitute, and in Veracruz it is also used to heal burns, and the whole dry fruit as a rattle (Castillo et al. 1919, F, XAL, Kelly 253, BH, Lira et al. 1360, IEB, Nee & Taylor 29355, BH, F, NY, XAL, Nee & Andres 32106, BH, K, NY, TEX, UC, USF; Nee 1993). Additionally, for two specimens recently collected in Chiapas, the use of the hollowed fruits as ceremonial vessels is reported (Andres et al. 134, BH, MO, NY, TEX, US), as well as the use of an infusion of the fruits for stomachache (Andres & Nee 152, BH, GH, K, MEXU, MICH, MO, NY, TEX, US, XAL).

*Cucurbita pedatifolia* L.H. Bailey and  
*Cucurbita scabridifolia* L.H. Bailey

These two perennial species are endemic to Mexico and closely related to each other. *Cucurbita scabridifolia* has been considered to be a hybrid between *C. foetidissima* and *C. pedatifolia* (Andres 1987b). *Cucurbita pedatifolia*

grows in semiarid environments of the states of San Luis Potosí, Querétaro, Guanajuato, Hidalgo, Puebla, and Oaxaca; *C. x scabridifolia* is found in the states of Coahuila, Tamaulipas, San Luis Potosí, Querétaro, and Hidalgo (Andres 1987b; Bailey 1943; Lira, Andres, and Nee 1995). In the Tehuacan-Cuicatlán Valley (Puebla-Oaxaca), *Cucurbita pedatifolia* is known as *calabacilla* and *torito*, and the fruits are used as a soap substitute. This plant is allowed to grow and even promoted around the house by local people (Lira & Soto 1090A, MEXU). Seeds of this species were identified from the plant remains found in several caves of Tehuacán (Cutler and Whitaker 1967) indicating that it was an important plant food resource in the past. The only ethonobotanical information recorded for *Cucurbita scabridifolia* was that in Tamaulipas it is named *calabacita* and the fruits are used as toys by children (Andres & Wyland 49, BH).

*Cyclanthera dissecta* (Torrey & A. Grey)  
Arn.

This species is widely distributed from southern United States through southern Mexico. (Jones 1969; Lira 1995). In the region known as Sierra Norte de Puebla, between the states of Puebla and Veracruz, this species is known in Nahuatl as *macuilquilitl* and in Totonaco as *aca'hua* (Villalobos 258, MEXU; Lira and Casas 1998; Villalobos 1994). The Nahuatl name probably means "five fingers" of "hand pot herb" and refers to the use of the leaves as a green or pot herb (*quilitl*.) In the state of Guerrero, this plant is known in Spanish as *chayotillo*, and the tender leaves and fruits are used as food and the mature fruits as toys by children (Wagenbreth 236, 379, MEXU, Viveros & Casas 278, ENCB, MEXU). Although the same name was also recorded for the State of México (Hinton 6866, 8465, 8577, ENCB), no information about use was found in the specimens reviewed.

*Cyclanthera integrifoliola* Cogn.

This species ranges from southern Mexico to Central America (Jones 1969). In Chiapas it is named in Tzeltal *mail pox*, *polot'z*, *polot'z ch'epak*, *yakil chupak*, and *chupak* and in Spanish as *chayote de ratón* (Shilom Ton 4771, 8484, López & Martínez 37, 169, 171, Santiz 96, Gómez 406, MEXU). The collection Shilom Ton 4771 reported the roots of this plant as a soap substitute; in the collection Santiz 96 the fruits

are mentioned as a preventative for premature children, and simply as a medicinal plant in the specimen *F. Gómez 406*.

#### *Cyclanthera langaei Cogn.*

This species ranges from southern México through Costa Rica (Jones 1969). In the Sierra Norte of Puebla it is used and named in the same manner as *Cyclanthera dissecta* (Villalobos GV-457-3217, MEXU; Lira and Casas 1998; Villalobos 1994). In Oaxaca and Guerrero it is known as *yuva xindi kava*, *yao-mbo hubo*, and *yao-mbo maratsi* (possibly Mixtec), and the young leaves and stems are eaten as a pot herb (*De Avila 275, Wagenbreth 184, 613, MEXU*). In Hidalgo it is called *macuilquiltil* in Nahuatl, and the tender leaves are prepared in soup or eaten as pot herb (*Villa 89, MEXU*); in Jalisco is reported as a plant consumed by cattle (*Guizar 527, MEXU*).

#### *Cyclanthera ribiflora Cogn.*

The geographic distribution of this species ranges from central Mexico through Guatemala (Dieterle 1976; Jones 1969). However, the only ethnobotanical information about this species comes from Sierra Norte de Puebla, where it is known as *nexcolom* or *nexcolo* in Nahuatl and *x-culumin* in Totonac. In this region the leaves and fruits are consumed by the people as greens (Villalobos 80, 456, MEXU; Villalobos 1994). This species may be considered an important plant resource for local people because it is a common, tolerated, and promoted plant in maize fields and disturbed areas close to the villages (Lira and Casas 1998; Villalobos 1994).

#### *Doyerea emetocathartica Grosourdy*

This perennial species grows from Mexico and the Antilles through South America (Dieterle 1976; Jeffrey and Trujillo 1992; Lira 1988; Lira et al. 1998; Lott 1985, 1993; Nee 1993). The only ethnobotanical reports are from the Maya from the Yucatán Peninsula in southern Mexico. In this region Millspaugh (1896) and Roys (1931) recorded the Maya name *kis kaan* or *ciz can* (snake stink), and more recently Lira (1988) recorded several descriptive Maya names as *kuum ak* (pumpkin vine), *tuch tunich* (belly raising among the stones, which describes the appearance of the stem of this plant, seeming to emerge from the rocks that partially cover the root), *xkabax kaax* (plant from the forest), *xmakal kaan* (vine with a yam), *xput kaan* (papaya

vine or vine with fruits similar to those of small papaya), *xta kaan* (stinky vine), *ya'ax kani* (wild vine), and *xmuk kaan* (buried vine). This plant is used by the Mayan people for a variety of purposes. Lira (1988) reported the use of the entire plant as a remedy for snake bite and as a good emetic; the fresh root boiled, fried, or crushed is used as an anti-inflammatory to heal ulcers and as a remedy against rheumatism; the crushed stems and leaves are also used against ulcers and rheumatism, and as an analgesic. Additionally, the fruits macerated in alcohol are used against rheumatism.

#### *Hanburia mexicana Seemann*

This is another species endemic to Mexico (Veracruz, Puebla, and Oaxaca) (Lira et al. 1998; Nee 1993), whose local names indicate the resemblance of the fruits to those of *chayote* (*Sechium edule*). In the State of Veracruz it is known in Spanish as *chayotillo* (little chayote) and *erizo de monte* (wild urchin); in Oaxaca it is named *chayote de mono* (monkey's chayote), and *chayote silvestre* (wild chayote) (Castillo et al. 145, Ibarra 3950, Osorio 18, MEXU; Nee 1993). In Veracruz the fruits are reported as edible (Castillo et al. 145; Nee 1993).

#### *Ibervillea millspaughii* (Cogn) C. Jeffrey and *Ibervillea sonorae* (S. Watson) Greene

*Ibervillea millspaughii* grows from southern Mexico through Belize and Guatemala. In Mexico it grows only along the Gulf Coast (Tamaulipas, Veracruz, and Yucatán Peninsula) and in some areas of northern Oaxaca (Kearns 1994; Lira 1988; Nee 1993). In the Yucatán Peninsula it is known in Maya as *xtukaanil* (thin stinky vine), *tu kaani* or *xtukaanul* (snake shit of stinky snake), and *ka'ulum* (turkey excrement). All these names allude to the foul odor of this plant (Lira 1988). The Yucatec Maya use the root of this plant as an anti-inflammatory and as a cure for rheumatism and muscle aches. Because of its importance in traditional medicine, in some areas of the Yucatán Peninsula the Maya promote and plant this species in the home gardens (*Ucán 512, Flores & Lira 9106, CICY, XAL, Lira & Ucán 514, MEXU, NY; Lira 1988; Lira and Casas 1998*).

*Ibervillea sonorae* is endemic to the states of Baja California, Sonora, and Sinaloa in northwestern Mexico (Kearns 1994). In Sonora it is known as *guareque*, *guarequi*, and *choya guani*



in Maya (*Lira et al. 1441*, IEB, IZTA, MEXU; Martin et al. 1998), and in southern Baja California as *limón-coyote* (*León 2865*, MEXU). In Sonora the tuberous root is widely used for a multitude of remedies. Thus, a piece of the root placed between the toes is said to be an effective palliative for the aches of rheumatism; the dried flesh is ground into a powder, poured into capsules, and taken routinely for rheumatism; the flesh is also said to be effective in curing cancer (Martin et al. 1998). Additionally, the roots of this plant are sold in the markets as an analgesic and a remedy for sores, heart diseases, and diabetes (*Lira et al. 1441*, IEB, IZTA, MEXU). In contrast to the medicinal reputation of the roots of these two species of *Ibervillea*, the fruits of *I. lindheimeri* (A. Gray) Greene have been reported as poisonous (Altschul 1973; Schultes 1990).

#### *Luffa operculata* (L.) Cogn.

This is one of the two taxa of *Luffa* native to the neotropics (Heiser, Schilling, and Dutt 1988 cited as *L. quinquefida*; Jeffrey 1992), ranging from southern Mexico through Central America. In the State of Chiapas it is known as *esponja* (sponge) and has been reported as a medicinal plant (*Matuda 17254*, MEXU), although no further data are provided with the specimen.

#### *Melothria pendula* L.

This species is widely distributed and abundant in America. In Mexico its various common names describe the plant by comparing it to several cultivated species either from the Cucurbitaceae or other families. Thus, in Chiapas it is known in Tzeltal as *mayil ak* (vine of the squash *mayil* = *Cucurbita ficifolia*) (*Santiz 58*, *Lira et al. 962*, MEXU); in Guerrero it is named in Mixtec *tintuyu vali* and *miná na*, and in Spanish *sandiita* (little watermelon), *chilacayotito* (little *chilacayote* = *Cucurbita ficifolia*), and *tomatito* (little tomato) (*Viveros & Casas 200, 277, s.n.*, *Wagenbreth 748*, MEXU; *Lira and Casas 1998*); in Oaxaca and Veracruz it is called *sandía de ratón* (mouse watermelon) (*Torres & Martínez 7368*, *Velázquez 138*, MEXU), and in Zoque *pentocz* (*Hernández 1081*, MEXU); in the Sierra Norte de Puebla Puebla it is called *sandía de pájaro* (bird watermelon), *sandía chiquita*, *sandía tzitzi* (Nahuatl), and *siña spuun* (Totonaco) (*Basurto & Patrón 59*, *Villalobos 43, 215, 268, 291*, MEXU; *Villalobos 1994*); in the Yucatán

Peninsula it is known by several Maya-Spanish names such as *sandía tuul* (rabbit watermelon), *sandía kaan* (snake watermelon), *sandía xiv* (watermelon herb), and *sandía xtulub* (lizard watermelon), as well as by Spanish names such as *meloncito* (*Chán 125, 668, 915, 1100, May 31, 182, 200, Narváez 395, Puch 629, 701, Sanabria 267, Ucan 587, 963, 1625*, CICY, MEXU; *Lira 1988*); finally, in the region known as La Huasteca in the State of San Luis Potosí, it is called in Teneek *baleeyail an t'eel* and *baleeyail rata* (*Alcorn 1691, 3243*, *Lira et al. 1469*, MEXU).

In almost every state of Mexico where *Melothria pendula* has been collected, the fruits, and sometimes the stems and leaves, are reported as edible. However, most of the uses recorded for this species are medicinal. In Chiapas an infusion of the fruit is used as a tonic for anemia and the boiled fruits are used as a remedy for heart disease (*Santiz 58*, *Lira et al. 962*, MEXU). The medicinal use of the fruits has been reported also among the Huastec (Teneek) Indians of San Luis Potosí, although no further information is provided in the specimens examined (*Alcorn 1691, 3243*, MEXU). In Yucatán an infusion of the entire plant is used as a remedy against gastritis, calculus, and sores; the crushed fresh plant is also used for snake bite, and the fresh crushed stem is applied topically and employed against rash and hemorrhoids and in general as an anti-inflammatory (*Lira 1988*). The medicinal importance of *M. pendula* for the Maya dates back to pre-Hispanic and colonial times as reported by Andrews (1979) and Roys (1931).

According to *Lira and Casas (1998)*, although this species is generally collected from the wild, it is also possible to find it growing as a weed in cultivated fields, as well as tolerated and/or protected in manmade habitats; furthermore, in Guerrero its seeds are intentionally scattered to increase its availability. This propagation can be considered selective, for the people recognize sweet and bitter fruit varieties.

#### *Microsechium helleri* (Peyr.) Cogn.

This perennial grows in the highlands of Mexico and Guatemala (*Dieterle 1976*; *Nee 1993*; *Rodríguez-Jiménez 1985*). In the State of México it is known as *sanocochi* or *chayotillo* and *chicamole*; the latter name is also used in Puebla; in Oaxaca it is known as *amole de bejuco* and

*tidaca*. In these three states, the massive root of this plant is used as a soap substitute (*Lira & Soto 1077, 1117, Matuda 21299, Tenorio 7587, MEXU*), and in the market in Oaxaca City it is sold for that purpose (*Gentry 12059, MEXU*). In the State of México it is also employed as an ornamental plant (*Juárez 5, MEXU*).

#### *Momordica charantia L.*

This species was introduced from the old world, probably from the Indo-Malayan region (Chakravarty 1990) and is widely known and utilized in Mexico. It is commonly known as *balsamina* in Sinaloa and Oaxaca and *cundeamor* in Tabasco, Veracruz, and Yucatán Peninsula. Additional common Spanish names have been recorded in Tabasco and Veracruz (*pepin, pepinillo, pepino de monte, melon de ratón, papayito, pepino cimarrón, and guadalupana*). Chiapas (*granadilla*), Michoacán (*avellana*), Oaxaca (*granadilla* and *manzanilla*), and Yucatán Peninsula (*cochinillo, chiquita, anacahuita, chorizo, flor de amor, and yakunax ak or yakunaj xiw*) (*Lira 1988*). The names *cundeamor, flor de amor, and yakunaj ak or yakunaj xiw* (love vine or love herb) refer to the aphrodisiac properties that people confer to the infusion of the roots and leaves.

This plant is used as a soap substitute in Sinaloa and the red, fleshy, sweet seed aril is commonly eaten by people in Sinaloa, Chiapas, Oaxaca, Tabasco, and Veracruz (*Calix de Dios 160, Lira & Reyes 1275, Martínez et al. MA -1964, Robles, 637, MEXU, Ortega 443, Acosta & Acosta 88, Villanueva 202, MEXU, XAL; Nee 1993*). In Michoacán the flowers and fruits are also reported as edible (*Guerrero et al. 6, MEXU*). Besides its use as food, this species is widely used as a medicinal. In Sinaloa the entire plant is used as a remedy against leprosy and sores of face, mouth, and head (*Shapiro 30, Gentry 11059, González 5668, Medina 1987, MEXU*). In the Yucatán Peninsula, an infusion of the entire plant (or fruits) is used as anti-inflammatory and as remedy against burns and sores, as an antihelminthic, and the fresh crushed leaves or fruits are used to heal burns, swellings, and rash (*Lira 1988*). In Oaxaca the plant is used in baths and enemas against fever, colds, headache, and acne, and the fruit is employed against rash (*Nereyda & Heinrich GUI7, Rohan 10, Zizumbo & Colunga 140, Castrejón & Concepción 66, 218, Lira & Soto 1177,*

*MEXU*). In Veracruz and Yucatán the plant is cultivated as an ornamental and is considered an aphrodisiac (*Ortega 443, MEXU, XAL; Lira 1988; Nee 1993*). This species is an important plant resource for traditional medicine in the Yucatán Peninsula and other parts of Mexico, where it is commonly tolerated and promoted in home gardens or other manmade habitats.

#### *Parasicyos dieterleae Lira & Torres*

This species is only known from its type locality in the Mixteca Alta region in the State of Oaxaca (*Lira and Torres 1991*). It is known as *tindú* in Mixtec and as *chilacayotito* and *chayotillo* in Spanish. These names indicate the resemblance of the green-and-white spotted fruits of this species to those of *Cucurbita ficifolia* (*chilacayote*) and *Sechium edule* (*chayote*). The infusion of the leaves and the roots of this species is used as an anti-diarrheic and in baths against lice (*Lira & Soto 1103, MEXU; Lira and Torres 1991*).

#### *Peponopsis adhaerens Naudin*

This species is endemic to Mexico. It occurs in the states of Hidalgo, Oaxaca, Puebla, Querétaro, San Luís Potosí, and Veracruz (*Lira 1997; Lira and Torres 1991; Lira et al. 1998; Nee 1993*). In San Luis Potosí it is known as *tsoopil uthu* in Huastec, and in Queretaro as *calabacilla*. In the states of Puebla and Querétaro the fruits are used as a soap substitute (*Andres & Wyland 23, K, NY, Lira et al. 1352, 1359, IEB, IZTA, MEXU*); in San Luis Potosí it has been reported as a medicinal plant, although no further data are provided with the specimen (*Alcorn C08, TEX*).

#### *Rytidostylis gracilis Hook & Arn.*

Although this species is widely distributed in the Neotropics (*Dieterle 1976; Jeffrey and Trujillo 1992*), it has been reported as a useful plant only from Chiapas, Oaxaca, and Guerrero, where it is known as *chayotillo*, and the leaves and tender tips of the vine are eaten as greens (*Martínez-Calderón 288, Soule & Brunner 2389, Wagenbreth 382, MEXU*).

#### *Schizocarpum palmeri Cogn. & Rose*

This species is endemic to western and southern Mexico (*Kearns 1992a; Lira 1997*). According to *Martin et al. (1998)*, in Sonora, the fruits are used to create dried flower arrangements that

are made and sold by local people. The same use was recently recorded by the first author in markets of Mexico City and Taxco, Guerrero.

*Sechiopsis triquetra* (*Ser.*) *Naudin*

This species is endemic to Mexico, where it is widely distributed from northern Sonora, and Zacatecas through Guerrero and Oaxaca (Kearns 1992a,b). It is called *chayotillo* in the states of Guerrero (also named *marranito* or small pig), Michoacán, Morelos, and Oaxaca (*Aguirre 89, Lira & Soto 1087, 1145, 1309, 1314, Torres 921, MEXU*). In Guerrero (*Lira & Soto 1087, 1309, 1314*) the whole plant is reported to be used as fodder.

*Sechium compositum* (*J. D. Smith*) *C. Jeffrey*

This species is native to the region between southern Chiapas and Guatemala and is closely related to the cultivated *chayote* (*Sechium edule*) (*Lira 1992, 1995a, 1996*). In Chiapas it is known in Mame as *xmasil* or *xmasin*, and in Spanish as *huisquil de monte* (wild huisquil; *huisquil* is one of the names given to *S. edule* in this region), *chayote de caballo*, and *husquil de cochi* (horse and pig *chayote*). The crushed root of this plant is used as a soap substitute, and the fruits crushed and mixed with water are used in baths against lice in horses (*Matuda 2151, F, GH, K, MEXU, NY, 17047, MEXU, Lira et al. 960, 1282, 1289, MEXU; Lira 1995, 1996; Newstrom 1986*).

*Sicydium tamnifolium* (*H. B. K.*) *Cogn.*

This species is widely distributed in tropical America from Mexico through South America and the Antilles (*Cogniaux 1881, 1916; Jeffrey 1978; Lira et al. 1998; Nee 1993*). In Tabasco it is called in Spanish *sandía de culebra* (snake watermelon) or *sandía de rata* (rat watermelon) (*Gonzalez & Pérez P 556, ENCB, MICH, XAL, 4159 ENCB*); in Oaxaca (*Martínez-Calderón 187, GH, US*) it is known in Chinantec as *gin man*, and in Querétaro (*Fernández-Nava 4253, ENCB*) and San Luis Potosí (*Alcorn 1960, TEX*) it is named *aisam an wako* in Huastec. In Yucatán, where this species is known in Maya as *chak mots* (red thin root), the crushed roots are applied topically against sores and swellings (*Lira & Ucán 636, MEXU; Lira 1988*).

*Sicyos longisepalus* *Cogn. and S. parviflorus* *Wild.*

*Sicyos longisepalus* ranges from Mexico through Guatemala (*Dieterle 1976; Lira et al. 1998*). In Chiapas it is known in Tzeltal as *ch'uma te' ch'o'*, and the leaves and flowers are used against warts and scabies (*Santiz 237, 1066, MEXU*). *Sicyos parviflorus* grows from Mexico through Central America to Ecuador (*Nee 1993*). In Oaxaca it is known as *chayotillo* in Spanish and as *lati- adi-ná* in Zapotec, and the tender tips are eaten as greens; in some places of Oaxaca the plant is tolerated in the maize fields by the Mixtec Indians because it is edible (*Lira & Soto 1102, 1141, 1156, MEXU; Lira and Casas 1998*).

**DISCUSSION AND CONCLUSIONS**

The data reported in this work reveal that wild Cucurbitaceae are important in the life of the people inhabiting rural communities of Mexico. A total of 34 species were recorded as used in some manner in 24 of the 32 states of Mexico (Table 2). Most species thrive mainly in man-made habitats, especially those related to traditional agricultural activities (e.g., cultivated fields, roads, orchard yards), however, there is no clear relationship between species richness and species used (see Table 2).

These species are relatively well known by Mexican people—all have one or more local names, and 23 are known by names in a native language. Additionally, many of the common names reflect the perception of the morphological similarity between some wild and cultivated species (e.g., *chayotillo, calabaza, calabacita*). The uses of the Mexican wild Cucurbitaceae can be grouped into 12 categories: human medicine (18), food (13), soap substitute (12), fodder (4), toy (3), drink (2), ornate (2), insecticide (1), animal medicine (1), handicrafts (2), container (1), and ceremonial (1), and some uses date to pre-Hispanic (seeds of *Apodanthera aspera* as food) and colonial times (medicinal uses of *Melothria pendula*). Additionally, the data obtained suggest that the potential of many of the species has been widely explored—for 13 species more than one part of the plant is used in one or several forms and with one or more purposes. This is the case of native species as *Cayaponia racemosa* and *Melothria pendula*, as well as introduced or naturalized as *Cucumis anguria* and *Momordica charantia*.



Some species are underutilized, for example *Cayaponia racemosa* and *Luffa operculata*. The first species is widely used in other countries of South America and the Antilles for medicinal purposes. In Colombia a decoction of the plant is used to treat kidney problems and the fruits eaten in salad are used to dissolve kidney stones (Pérez-Arbeláez 1956). In Curaçao, the fresh fruits are eaten to treat jaundice (Schultes 1990); in Cuba a decoction of the root is taken to reduce edema, the fruit is considered a good remedy to treat hemorrhoids, the juice of leaves is applied to freckles, and the leaves, after steeping in vinegar, are considered valuable in treating ringworm (Schultes 1990; Roig y Mesa 1974). Recorded data from other regions of tropical America report *Luffa operculata* is a source of vegetable sponge and is commonly used as a medicinal plant. In the Brazilian Amazon, a diarrhea remedy is prepared with a water decoction of the fruit, and the dried fruit powdered and mixed with an extract of leaves of *Passiflora laurifolia* L., is said to have abortifacient properties (Schultes 1990). In Peru, an infusion is taken against syphilis and is externally applied to cauterize wounds (Sagástegui 1973; Schultes, 1990); in Colombia the fruits are valued as purgative, emetic, and sudorific, and also applied externally to treat ringworm, sinusitis, and chronic ophtalmia resulting from conjunctivitis (Pérez-Arbeláez 1975; Schultes 1990). In Trinidad and Tobago, the seeds, soaked in rum, are esteemed for treating snakebite (Schultes 1990; Wong 1976).

The information reported in this paper reveals the importance of the wild Cucurbitaceae in Mexico, and perhaps the lack of traditional knowledge about some species in some regions of the country. It is important to note that with the exception of the data gathered by us in the field most ethnobotanical data from herbarium specimens consists of ancillary notes by collectors. If an in-depth ethnobotanical exploration were made, much more information could be obtained.

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