

## ETHNOBOTANICAL NOTES FROM THE VALLEY OF SAN LUIS, COLORADO

Robert A. Bye, Jr.

and

Edelmira Linares

*Department of Environmental, Population and Organismic Biology  
and*

*Herbarium, University of Colorado Museum*

*University of Colorado*

*Boulder, CO 80309-0334*

*and*

*Jardín Botánico*

*Universidad Nacional Autónoma de México*

*Apdo. Post. 70614, 04510 México, DF.*

**ABSTRACT.**—Knowledge and use of plants by the Hispano Americans in the San Luis Valley of south-central Colorado, USA, are the result of selective diffusion of Mexican Spanish traditions and of the adoption of local Native American customs. Of the 66 taxa recorded in the study, the native *oshâ* (*Ligusticum porteri*) is one of the most important herbal remedies of this once culturally and geographically isolated region. The Pueblo Indian term *oshâ* is applied also to the European lovage (*Levisticum officinale*) which is cultivated as a substitute for the wild plant. Certain native plants such as *Ribes leptanthum* and *Mentha arvensis* carry introduced Mexican Spanish names and uses. In addition to gathering the plants locally, 22 species are available from commercial suppliers through local pharmacies.

### INTRODUCTION

The Valley of San Luis ("El Valle") is located in the Rio Grande Basin near the head waters of the Rio Grande River (Rio Bravo) in south-central Colorado and adjacent New Mexico. The basin floor with an elevation of about 2290 m is covered with dry grass and shrubland interspersed with fields in which vegetables, potatoes, alfalfa, wheat and barley are cultivated. The surrounding higher terrain, the San Juan Mountains on the west and the Sangre de Cristo Mountains on the east, are forested by various communities of pine, oak, aspen, spruce and fir. Both ranges have peaks over 4270 m. The weather in the valley is characterized by short, cool summers and long, cold winters. About 870 flowering plant species are reported in the Coloradoan San Luis Basin (Dixon 1986).

Despite various Spanish explorations of "El Valle" since the late 1500s and colonization attempts since the late 1700s, successful Hispanic settlements were not established until the early to middle 1800s (López T. 1975). The early Spanish settlers were associated with land grant or "mercedes" and attracted Mexican mestizos as workers. The early residents were separated from Mexico except for infrequent commercial or personal visits to Santa Fe (founded in 1598) or to Chihuahua (founded in 1709). Consequently, they were isolated and depended upon the few Spanish and Mexican items they brought with them and upon the local resources. There was little intermingling with Native American groups, such as the Comanches, Navahos and Utes, that hunted in the area. The Spanish Americans remained isolated after the region was incorporated into the United States. Only recently and gradually have they (especially the younger generation) become acculturated into the Anglo-American lifestyle.

The effect of blending the Spanish Colonial heritage and the native customs and the isolation of the early settlers is evident today in northern New Mexico and adjacent Colorado. Natives of "El Valle" speak a distinctive archaic form of Spanish (Cobos 1983). Social activities, holiday celebrations, songs and folktales in the Valley of San Luis reflect local development that stemmed from the original influence of Santa Fe and Chihuahua (Lopez T. 1975). The Hispanic health tradition is characterized by the complex of **yerba buena**, **oshá**, and **inmortal** (Schulman and Smith 1962) which is composed of a northern hemisphere herb, *Mentha arvensis* L., and two native plants, *Liquisticum porteri* C. & R., and *Asclepias* sp., respectively. In "El Valle" it is believed that medicinal plants do not have energy until the "bendición" (blessing) in mid July (Darlene Norton, pers. comm.) which coincides with two Catholic saints' feast days: "el día de Santiago" and "el día de Santa Ana" (López T. 1975). Traditionally, the summer and early fall were the important seasons to collect the herbs for storage and consumption during the winter when most the illnesses occurred.

"Remedios" (medicines) consist of plants (which may be employed separately or in herbal mixtures) as well as other items. For example the **siete flores de casa** is a variable mixture of flowers from around the house which are crushed and placed in the ear to alleviate ear aches. Other materials may be mixed with the plants or used alone. Animal products include deer blood, baby urine and virgin honey. Home-made vinegar, whiskey and sodium bicarbonate are also employed.

Certain "remedios" such as **plumajillo** and **oshá** are said to be eaten by deer and goats but not by cattle. Consequently the meat of these animals as well as the goat milk are considered to be healthier.

According to residents of "El Valle," the early settlers attempted to introduce plants from Mexico that were important "remedios." For example **romero** (*Rosmarinus officinalis* L.) is mixed in alcohol with **oshá** (*Liquisticum porteri*) and is applied topically to treat arthritis and rheumatism. In the past **romero** shrubs from Mexico had been planted by the ancestors but never became established in the Valley. Today, the **romero** is purchased in the pharmacies which obtain it through commercial suppliers.

"Curanderos" and "curanderas" (also called "médicas" according López T. (1975)) are native healers in "El Valle." Today, they are regarded highly by those who still value cultural medical customs. However, they are the older people and no young traditional medical practitioners are known.

The introduction, adoption, and rejection of native and foreign plants have influenced the retention of knowledge and use of vegetable resources in "El Valle" by Hispano Americans. Information about these herbs has been passed down over the generations and has been subject to few outside influences until recently. The geographic and cultural isolation offers an unusual opportunity to study the ethnobotanical knowledge that has persisted in the region that was once the northern frontier of Mexico. Lack of cultural interchange between the Hispanic and Anglo peoples reinforced the traditional uses of plants. Today, the rapid acculturation of the Hispano Americans has resulted in decline in the knowledge and employment of herbs.

The few botanical studies (Dixon 1971, 1986; Ramaley 1929, 1942) mainly describe plant communities or are species lists of vascular plants. Although no general ethnobotanical studies have been published for this region of Colorado, the writings of Curtin (1965) and the compilation by Ford (1975) serve as classic references based upon voucher specimens for traditional medicinal plants in adjacent northern New Mexico.

#### "LA BOTICA"

"La Botica" (the pharmacy) is a special habitat located on a shelf (Fig. 1) in the canyon of La Jara Creek (R7E T34N, section 28; Vicente, Colorado, quadrangle) on the



FIG. 1.—“La Botica” located on the shelf between the top of volcanic rock ridge and La Jara Creek, looking to the west [July 1984].

western side of the valley at an elevation of 2640 m. It has been a local source of medicinal plants for many generations “El Valle” residents. The plants were thought to have been protected (or even planted) by the Indians “por que habia muchos remedios juntos” (because of the local concentration of many medicinal plants) and later encouraged by the early Hispanic settlers. About 15 years ago, the area was overgrazed by sheep resulting in the spread of sagebrush and the disappearance of many medicinal plants. Today the area is dominated by sagebrush (*Seriphidium tridentatum*) and surrounded by scattered clumps of *Abies concolor*, *Pseudotsuga menziesii* (Mirb.) Franco, *Populus tremuloides* Michx., *Pinus edulis*, and *Juniperus* spp.

#### METHODS AND MATERIALS

This study was initiated with three goals: (1) document the Mexican medicinal plants at the northern limit of Spanish Colonial and Mexican National settlements [Linares and Bye in press]; (2) identify the local useful plants of “El Valle” as an assistance to the residents interested in preserving their customs; and (3) obtain voucher specimens of plants used as a “remedios” or folk remedies in a collaborative project with G. Appelt, School of Pharmacy, University of Colorado, Boulder [Appelt 1985].

Collections and interviews during 1983 and 1984 concentrated in the Coloradoan towns of Alamosa (Alamosa County), Capulin, and La Jara (both in Conejos County). Lists of plant names, plant uses and administration, and specimens were obtained from residents, pharmacists and customers purchasing herbs. Plant samples were collected from pharmacies, gardens, fields and forests. Knowledgeable local people verified specimens and accompanied us into the field.

Two forms of voucher specimens were made: (1) pressed, dried herbarium specimens in the case of fresh plants and (2) packaged dried plants in the case of material obtained from homes or pharmacies. The herbarium specimens are deposited at the University of Colorado Herbarium (COLO), Adams State College Herbarium (ALAM), and Herbario

Nacional de la Universidad Nacional Autónoma de México (MEXU). The packaged material is deposited in the collections of the Laboratory of Ethnobotany, University of Colorado, and of the Laboratorio de Ethnobotánica, Jardín Botánico, UNAM. Color slides as well as black and white photographs were made of the plants when possible.

## RESULTS

The local plants of importance to the Hispanic residents of the Valley of San Luis are discussed below in alphabetical order by family, genus and species. Because of the limited nature of the study, they do not represent all of the plants recognized or used by the Hispano Americans in "El Valle." Some plants are collected by the users, exchanged within the family and among friends, or purchased in pharmacies. The herbs sold in stores may be collected locally or obtained from commercial suppliers such as Green Mountain Herbs (Boulder, CO), A. López (Belen, NM), Los Remedios de la Gente (Santa Fe, NM), Flores Nacional (Tucson, AZ), Sunrise Teas & Spices, Inc. (Reno, NV), and Peru's (Los Angeles, CA) (see Table 1).

### ANACARDIACEAE

*Rhus aromatica* Ait. subsp. *trilobata* [Nutt.] Weber

**lemita**

Deer are said to be fond of browsing this low shrub found in open sites on the lower slopes and with pinon-juniper. Its red, acid fruits are eaten raw with beans or preserved with sugar for later consumption. *Bye* & *Linares* 12,916.

### APIACEAE

*Levisticum officinale* Koch

**oshá; oshá del jardín**

At least three generations are thought to have cultivated this perennial herb (Fig. 2a). The leaves are dried, powdered and used as a condiment, often kept in a shaker on the table, and maybe are added to cooked beans. It is considered a substitute for **oshá de la sierra** (*Liquisticum porteri*). When plants are hilled in the spring, they produce elongated petioles which can be eaten like celery but have the flavor of **oshá**. *Bye* & *Linares* 12,247; 12,946.

*Liquisticum porteri* C. & R.

**oshá; oshá de la sierra**

The characteristically odoriferous rootstock of the perennial *Liquisticum porteri* is collected in the spruce forest during late summer and early fall after the leaves have turned yellow. It is the most popular "remedio" in San Luis Valley for treating colds, sore throats and stomachaches. The shavings of the root (Fig. 2b) may be chewed or are infused and the tea drunk. To aid the healing of wounds, the powdered root is applied in a gauze to prevent infection. For fevers, one is bathed in an infusion of the roots. The leaves are dried in the shade little by little so as to not lose their strength. They are used as a condiment alone or with **orégano** in bean dishes. As a food additive or as a tea, **oshá** is said to aid the digestion. Carrying a piece of it is a practice to prevent snakebites. It is thought that in the past the older people were not sick because they always carried a piece of **oshá** in a small bag or pouch. It is believed that one will stay young by taking this root daily. Locally collected roots as well as those from out of state suppliers (who use the name **chuchupate**) are sold in the pharmacies. *Bye* & *Linares* 12,649; 12,659; 12,262; 12,949.

TABLE 1.—Plants from commercial suppliers sold in pharmacies of San Luis Valley. The collection numbers refer to specimens of Bye and Linares.

AMARANTHACEAE	
<i>Amaranthus cruentus</i> L.; <b>alegria</b>	12,265
APIACEAE	
<i>Ligusticum porteri</i> C. & R.; <b>chuchupate raíz</b>	12,268
ASTERACEAE	
<i>Achillea lanulosa</i> Nutt.; <b>plumajillo</b> ; yarrow	12,276
<i>Artemisia mexicana</i> Willd.; <b>estafiate</b>	12,270
<i>Chamomilla recuitita</i> (L.) Rauschert; <b>manzanilla</b>	12,660
<i>Liatris punctata</i> Hook.; <b>cachana</b>	12,661
<i>Pericalia sessilifolia</i> (Hook. & Arn.) Rydb.; <b>cachana</b>	12,668
<i>Thelesperma</i> sp.; <b>cota</b> ; Navajo tea	12,646
<i>Ximenesia enceliodes</i> Cav.; <b>añil del muerto</b>	12,647
CHENOPODIACEAE	
<i>Teloxys ambrosioides</i> (L.) Weber; <b>epazote</b>	12,271
<i>Teloxys graveolens</i> (Willd.) Weber; <b>epazote de zorrillo</b>	12,272
FAGACEAE	
cf. <i>Quercus</i> sp.; <b>encino</b>	12,648
LAMIACEAE	
<i>Dracocephalum</i> sp.; <b>toronjil</b> ; lemon balm	12,227
<i>Lavandula officinalis</i> L.; <b>alhcena</b>	12,266
MALVACEAE	
<i>Sphaeralcea coccinea</i> (Pursh) Rydb.; <b>yerba de la negrita</b>	12,281
RUBIACEAE	
<i>Hintonia</i> sp.; <b>copalquin</b>	12,267
RUTACEAE	
<i>Casimiroa edulis</i> Ll. & Lex.; <b>hojas de zapote blanco</b>	12,282
SAURURACEAE	
<i>Anemopsis californica</i> (Nutt.) Hook. & Arn.; <b>yerba mansa</b>	12,645
SCROPHULARIACEAE	
<i>Verbascum thapsus</i> L.; <b>punchôn</b> ; mullein	12,654
TILIACEAE	
<i>Tilia</i> sp.; <b>flor de tila</b>	12,278
TURNERACEAE	
<i>Turnera</i> sp.; <b>hojas de damiana</b>	12,269
ZYGOPHYLLACEAE	
<i>Larrea tridentata</i> (Moc. & Sessé) Cov.; <b>chaparral</b> ; <b>gobernadora</b>	12,273; 12,651

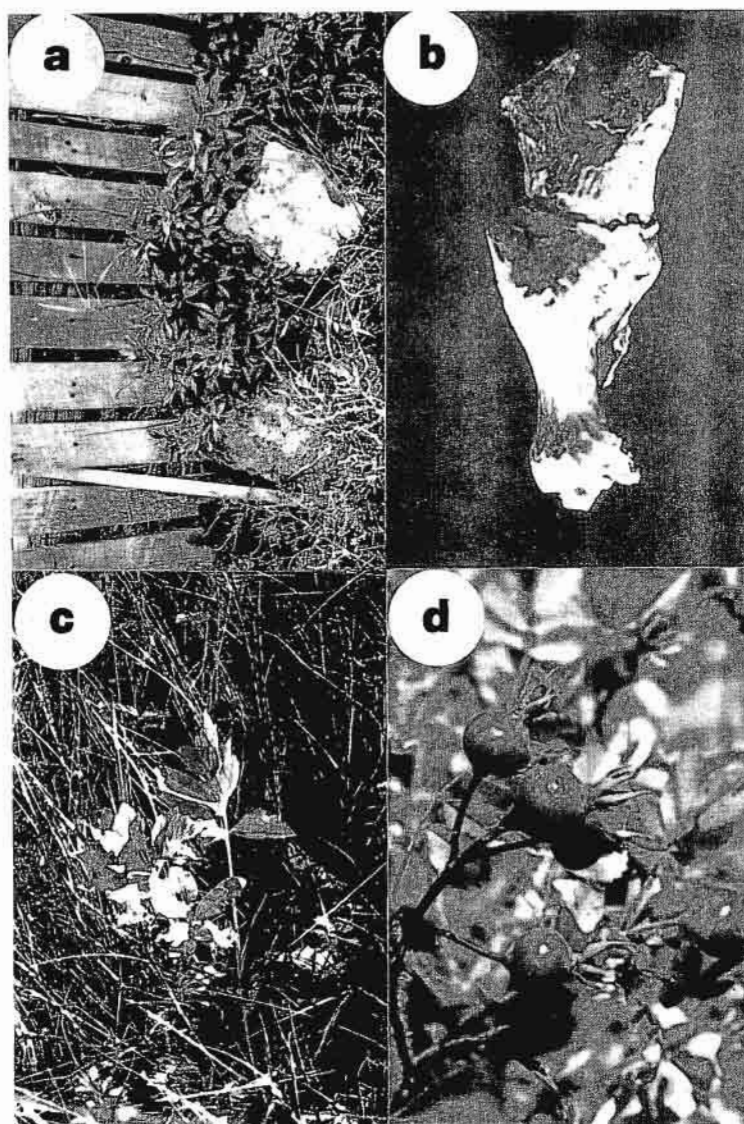


FIG. 2.—Some useful plants of San Luis Valley, Colorado. Fig. 2a.—*oshâ del jardín* (*Levisticum officinale*) cultivated in Capulin (Bye & Linares 12,247). Fig. 2b.—shaved rootstock of *oshâ de la sierra* (*Ligusticum porteri*). Fig. 2c.—young leaves of *dormilones* (*Rudbeckia ampla*) (Bye & Linares 12,944). Fig. 2d.—*champes* (*Rosa woodsii*) (Bye & Linares 12,259).

#### ASCLEPIADACEAE

*Asclepias* sp.

*immortal*

The thick, vertical root of the perennial *immortal* is said to be collected locally in such areas as Antonito and, taken as tea, is a popular "remedio" for colds and is taken as a tea. It is said to be similar to *contrayerba* and pleurisy root. Locally collected roots are sold in the pharmacies. Three species are reported from the Valley of San Luis: A.

*asperula* (Dcne.) Woodson, *A. hallii* Gray, and *A. speciosa* Torr. (Dixon 1986). *Bye* ☉ *Linares* 12,652.

## ASTERACEAE

*Achillea lanulosa* Nutt.

***plumajillo; plumajillo de la sierra; yarrow***

The characteristically divided leaves, white flowers and bitter taste signal the presence of the perennial yarrow of open areas on the basin floor as well as of the forested mountains. The aromatic vapor of the infusion of this herb, poleo (*Mentha arvensis*) and ***altamisa de la sierra*** (*Artemisia frigida*) is inhaled to treat "gripa" (colds) and is used in "jumason" (hot bath with vapors). For fast relief of stomachaches, the leaves are chewed and swallowed or an infusion is drunk. It is also used to treat "el frio en el estomago" (gastrointestinal pain caused by cold air entering the body). The herb tea is consumed to relieve painful and bloody urination. To enrich the blood of those with anemia, the infusion is consumed. This popular "remedio" is available dried in the pharmacies and is derived from local and New Mexican sources. For home storage and consumption, the leaves are collected in August and dried. The plants in the valley floor are called ***plumajillo de la casa*** and are not considered to be as effective. *Bye* ☉ *Linares* 12,655; 12,260; 12,276.

*Artemisia frigida* Willd.

***altamisa de al sierra; estafiate; plumajillo de la sierra***

The low, perennial herb *Artemisia frigida* is found on the valley floor and in the forested lower mountains. The bitter, divided leaves are chewed and swallowed to alleviate stomachaches rapidly and to treat "el frio en el estomago." Dried plants from local sources are sold in the pharmacies. For home storage and consumption, the leaves are collected in August and dried. The ***estafiate de la sierra*** is said to be more effective than ***estafiate del campo*** and is most common near dying or dead *Abies*. *Bye* ☉ *Linares* 12,656; 12,908.

*Chamomilla recutita* (L.) Rauschert

***manzanilla***

Home gardens in "El Valle" and northern New Mexico contain plants of this European herb. A tea made from it is said to be effective in relieving "jiel" (bile colic) and gastrointestinal pain. Babies with "chincual" (baby diarrhea) are given an infusion by a dropper. This popular herb can also be obtained at the pharmacies which purchase it in bulk from commercial suppliers. *Bye* ☉ *Linares* 12,660.

*Grindelia aphanactis* Rydberg

***yerba de buey***

Disturbed areas in the valley harbor this annual herb. Local, dried plants are sold in the pharmacies. *Bye* ☉ *Linares* 12,663.

*Grindelia squarrosa* (Pursh) Dunal

***pega***

An annual herb with yellow flowers *Grindelia squarrosa* is common in recently disturbed sites in the valley though it is thought to be more common in New Mexico. Regular drinking of a tea from the plant is considered to be a good treatment for cancer, especially when taken as soon as the cancer begins. It cleans the person from the inside. It is also helpful in treating stomach ulcers as a tea and sores as a topical wash. *Bye* ☉ *Linares* 12,253.

cf. *Helianthus ciliaris* DC.

***yerba de buey***

This annual species of sunflower grows on the valley floor and extends into New Mexico from where fresh plants are brought and sold in the pharmacies. *Bye* ☉ *Linares* 12,280.

*Liatris punctata* Hook.**cachana**

*Liatris punctata*, a perennial herb with purple flowers, is limited to the eastern part of the valley although in the past it was collected in "La Botica" on the western side. To alleviate stomachaches and colic, one bathes in an infusion of the swollen rootstocks as well as drinks the tea. In the past, the rootstocks were used to wash clothes. Dried rootstocks originating in northern New Mexico are popular in the pharmacies and are a traditional component of sterility "remedios" (Linares and Bye in press). *Bye & Linares* 12,661.

*Rudbeckia ampla* A. Nelson**dormilones**

The immature leaves (Fig. 2c) of this perennial herb are collected fresh from moist areas along streams in June and are cooked and eaten as a **quelite**. The young, tender leaves are preferred because the older, large ones are bitter. Like other **quelites**, they can also be dried and stored to be used later by soaking them. They are considered a delicacy although they can be confused with the poisonous **yerba de peco** (*Actaea rubra* (Ait.) Willd.; *Cicuta occidentalis* Greene) [Curtin 1965; López T. 1975] and toxic **yerba de perro** (unidentified). *Bye & Linares* 12,944.

*Seriphidium tridentatum* (Nutt.) Weber  
(syn., *Artemisia tridentata* Nutt.)**chamiso hediondo;**  
**chamisona; chamiso hediondilla**

The perennial sagebrush *Seriphidium tridentatum* grows in isolated parts of the valley, such as "La Botica," and in denser stands in the southern part of the valley and adjacent New Mexico. It is said to be more common in New Mexico where the foliage is darker in color. The tea and hot vapor bath using the foliage are employed in the treatment of "resfriados" (colds). It is one of the bitter herbs used in a mixture for colds; sugar is added to improve the flavor. Also a tea is drunk to lower blood sugar. *Bye & Linares* 12,932.

*Ximenesia encelioides* Cav.  
(syn., *Verbesina encelioides* [Cav.] Benth.)**añil del muerto**

*Ximenesia encelioides* is a common annual herb in disturbed areas near houses and roads on the valley floor and lower mountain slopes. A bath prepared from the whole plant is used to calm the pain of arthritis, rheumatism and "resfriados" (colds). The herb is first boiled in a pot and then the infusion poured into the bathtub. Dried plants from New Mexico are sold in the pharmacies. *Bye & Linares* 12,247; 12,648; 12,940.

## BRASSICACEAE

*Capsella bursa-pastoris* (L.) Medic.**bolsa de pastor; shepherd's purse**

Shepherd's purse is a weedy European annual of disturbed areas on the valley floor. Dried plants from local sources are available in the pharmacies. *Bye & Linares* 12,657; 12,662.

## CACTACEAE

*Coryphantha vivipara* (Nutt.) B. & R.**huevos del Indio**

This low, ball cactus is found on open slopes in the pinyon-juniper woodland. *Bye & Linares* 12,936.

*Opuntia polyacantha* Haw.**nopal redondo**

The pads of this cactus of dry, disturbed sites on the valley floor and in the pine forests are consumed to lower blood sugar. *Bye & Linares* s.n. (photo).



## CUPRESSACEAE

*Juniperus communis* L. subsp. *alpina* Celakovsky

*sabina macha;*  
*sabina de la sierra*

The low, prostrate shrub *Juniperus communis* is scattered in the understory of the pine forests. A tea of the foliage is drunk to treat the kidneys when one has painful urination and "flujo de sangre" (excessive menstruation). It is also administered in "jumasos" where by one sits over a basin with the branches in hot water and is covered with a blanket. This *sabina* is said to be more effective than the *sabino* (*Juniperus monosperma*). *Bye* & *Linares* 12,261; 12,937.

*Juniperus monosperma* (Engelm.) Sargent

*sabino*

A tea from the foliage of *sabino* is drunk when it is painful to urinate. This small tree can be found on the lower mountain slopes. *Bye* & *Linares* 12,939.

## EQUISETACEAE

*Hippochaete laevigata* (A. Br.) Farwell  
(syn., *Equisetum laevigata* A. Br.)

*canutillo de llano*

This perennial horsetail thrives along irrigation ditches and other moist areas on the valley floor. The locally collected dried stems are sold in the pharmacies. *Bye* & *Linares* 12,666.

## FABACEAE

*Medicago sativa* L.

alfalfa

Alfalfa, growing both as a cultivated and escaped exotic perennial, is common on the valley floor. The blended fresh leaves are drunk by those with fragile bones. The infusion is used in making a bath for treating arthritis. *Bye* & *Linares* 12,900.

## GROSSULARIACEAE

*Ribes leptanthum* Gray

*garambuyo*

This low shrub of the pinyon-juniper woodland produces sweet, purple fruits which are eaten raw. *Bye* & *Linares* 12,924.

## LAMIACEAE

*Mentha arvensis* L.

*yerba buena; poleo; menta;* mint; brookmint

*Mentha arvensis*, native to the northern hemisphere, grows in moist areas of the valley floor and mountains and is especially common along irrigation ditches. The tea of this perennial herb is a common "remedio" for stomach ailments and colics. For treating fevers, it is used in a bath. The infusion is used as an eyewash. The herb is also used as a condiment for meat, soup and noodles. It is obtained from the field and is employed fresh as well as stored dried for future use. The plants from the mountains are said to be stronger than those from the valley floor. The dried herb is available in the pharmacies. *Bye* & *Linares* 12,653; 12,279; 12,904; 12,907; 12,943.

*Monarda fistulosa* L. var. *menthaefolia* (Graham) Fernald

*orégano*

The annual herb *Monarda fistulosa* can be gathered on the valley floor and the lower, forested slopes of the mountains. A tea of this plant is drunk to alleviate stomachaches. Dried leaves are used as a condiment in beans cooked with garlic. Local plants are collected and sold in the pharmacies. *Bye* & *Linares* 12,275.

## LILIACEAE

*Asparagus officinalis* L.**espárrago**

The European perennial *Asparagus* is adventive in moist areas on the valley floor, especially near irrigation ditches. In June, the developing shoots are gathered, cooked and eaten as those of the cultivated form. *Bye* & *Linares* 12,902.

## MALVACEAE

*Malva neglecta* Wallr.**malvas**

This pink-flowered, prostrate species of *Malva* grows on the valley floor in gardens and cultivated fields. For sore throats and "orejones" (mumps), a poultice of the leaves and stems is placed on the painful area. *Bye* & *Linares* 12,252; 12,906.

*Sphaeralcea coccinea* [Pursh] Rydberg**yerba de la negrita**

*Sphaeralcea coccinea* a common perennial weed in disturbed areas near fields and roadsides of the valley floor. The crushed leaves and orange-red flowers mixed with sugar are used to remove "grano enterrado" (hard boil). The crushed herb is also applied to infected cuts and cracked hands. It is not drunk as a tea. The hair is rinsed with an infusion of the plant in order to prevent it from falling out. Local, dried herbs are sold in pharmacies. The fresh plant is considered to be more effective than the dried herb. *Bye* & *Linares* 12,249; 12,281; 12,905; 12,911; 12,950.

## ONAGRACEAE

*Oenothera coronopifolia* T. & G.**hierba de San Juan**

An infusion of the leaves and flowers is used to wash infections, wounds and "granos enterrados." The white flowers of this perennial herb create showy patches in open areas of the valley floor and slope. *Bye* & *Linares* 12,913.

## PINACEAE

*Abies concolor* (G. & G.) Lindl.**pino real**

*Abies concolor* grows in the mixed conifer forests and along the lower slopes near the rivers. The wood of this tree is said to be of poor quality for cooking and heating. The **trementina** or resin that exudes from wounds on the trunks and branches can be applied to remove "granos enterrados." A poultice is made by combining the resin with **yerba de la negrita** (*Sphaeralcea coccinea*). For infections in the urinary tract, one teaspoon of the **trementina** mixed with sugar is drunk. *Bye* & *Linares* 12,936.

*Pinus edulis* Engelm.**piñón**

As a major component of the pinyon-juniper woodland, *Pinus edulis* dominates the lower slopes of the mountains, especially on south-facing hill sides. The wood is valued along with that of **pinabete** (*Picea* sp.) for cooking and heating. The trees are said to yield more edible seeds when the spring is very rainy. *Bye* & *Linares* 12,938.

*Pinus* sp.**trementina**

Resin from local pine trees (usually said to be **piñón**, *Pinus edulis*) is sold in the pharmacies. For treating hemorrhoids, it is mixed with powdered **punchón** (*Verbascum thapsus*) or **punche mexicano** (*Nicotiana* sp.), honey, and **yerba mansa** (*Anemopsis californica* [Nutt.] Hook. & Arn.) to form a ball which is administered as a suppository. Some ointment combinations also include **romero** (*Rosmarinus officinalis*). To remove silvers and boils, a mixture of **trementina**, **punche**, and honey is applied externally. *Bye* & *Linares* 12,667.

## POLYGONACEAE

*Eriogonum racemosum* Nutt.**cola de ratón**

In open areas of pinyon-juniper woodlands, one can commonly find **cola de ratón** along with *Seriphidium tridentatum*. *Bye & Linares* 12,919.

*Rumex salicifolius* Weinm.**lengua de vaca**

Dried herbs (leaves and infructescences) from local sources in the mountains are available in the pharmacies. *Bye & Linares* 12,664.

## ROSACEAE

*Cercocarpus montanus* Raf.**palo duro**

This shrub is found in the pinyon-juniper woodland and into the conifer forests of the valley. *Bye & Linares* 12,931.

*Rosa woodsii* Lindl.**champes; rosa de castilla**

The red fruits of wild rose (Fig. 2d), often found in the understory of the forests, are eagerly gathered in the fall. They may be eaten raw or mixed with apples and other fruits to make a jelly. Usually **champes** are not used alone because they impart a strong flavor. The flower petals are used in making a tea which is given to babies with colic. The tea is also used to alleviate "torzones de tripas" (intestinal cramps). Ground petals are used like talc to treat "chincual." *Bye & Linares* 12,259.

## RUTACEAE

*Citrus* sp.**hoja de limón**

The leaves of this Asiatic tree grown in greenhouses and home windows are used in making a tea. Dried leaves are sold in the pharmacies. *Bye & Linares* 12,658.

## SALICACEAE

*Populus angustifolia* James**jara; álamo**

This distinctive tree in the valley, frequently found along streams and irrigation ditches, is used as living fences and windbreaks. The fresh twigs are chewed to fix loose teeth and to treat pyorrhea. The chewed leaves are said to help preserve the teeth because they have the action of chlorophyll. The leaves are also used to make a "remedio" for venereal disease (see *Urtica*). *Bye & Linares* 12,250.

*Populus nigra* L. var. *italica* DuRoi**jara; álamo**

This introduced tree is used in the same manner as the preceding species. *Bye & Linares* 12,251.

## URTICACEAE

*Urtica dioica* L. subsp. *gracilis* (Ait.) Selandier**ortiga; ortiguilla;**  
nettle; poison-ivy

*Urtica dioica* grows in moist places on the valley floor and the lower forested slopes, especially along irrigation ditches and creeks. The leaves of this perennial, stinging herb are mixed with leaves of *Populus angustifolia* and fried onions (*Allium cepa* L.), boiled and drunk as a "remedio" for venereal disease. For those who have difficulty to "miar" (urinate), a tea of the herb is drunk. Locally collected plants are sold dry in the pharmacies. *Bye & Linares* 12,264; 12,650; 12,942.

## OTHER PLANTS

Some plants were mentioned during discussions with Valley residents but were not available or in the appropriate state to make voucher specimens. These have been listed in alphabetical order by their local names. Probable identifications are given based upon descriptions and characteristics assigned to them or based upon field determinations of plant remnants. Future researchers should obtain specimens to better document these plants and their ethnobotanical data.

***ajo y cebolla de la sierra***

The bulbs and leaves of wild garlic and onion are said to be available all year round in the mountains. They are edible raw or cooked. Two species of *Allium* are reported from the basin of San Luis: *A. cernuum* Roth and *A. geyeri* S. Wats. [Dixon 1986].

***alucema***

The cultivated herb, *Lavandula officinalis* L., is obtained from the pharmacies (*Bye* & *Linares* 12,266). Drops of the infusion are given to babies when they have "chincual."

***altamisa***

A very bitter herb, probably *Artemisia ludoviciana* Nutt. subsp. *redolens* (Gray) Keck, is known from the mountains (***altamisa de la sierra***) as well as from the valley (***altamisa de la casa***). A tea from foliage mixed with ***chamiso hediondo*** (*Seriphidium tridentatum*) is drunk by those with diabetes. It also is employed to alleviate stomach pains and colics and used in a bath for fever.

***epazote; pazote***

An annual herb referable to *Teloxys ambrosioides* [L.] Weber (syn., *Chenopodium ambrosioides* L.) is obtained dried in the pharmacies as well as from local and New Mexican sources (*Bye* & *Linares* 12,271). It is used in preparing a tea, which can cause vomiting and nausea when consumed in quantity.

***maravilla***

The roots of a perennial herb, probably *Mirabilis multiflora* (Torr.) Gray and/or *M. oxybaphoides* Gray of the pinyon-juniper woodlands (Dixon 1986), are gathered locally and sold in the pharmacies. *Bye* & *Linares* 12,274.

***pinabete***

It refers to the spruces, *Picea engelmannii* (Parry) Engelm. and *P. pungens* Engelm.

***punche mexicano; tabaco***

This annual herb with large leaves, probably *Nicotiana rustica* L., is planted every summer. It may also refer to wild species of *Nicotiana*. In addition to smoking the prepared leaves, fresh leaves are crushed and inhaled to cure stuffy noses. It is also used in the preparation of a hemorrhoid remedy (see *Pinus*), sometimes mixed with "cebo" (sheep fat), or added to ***punchón*** to treat "dolor de ardo" (heat pain). The plant is used principally by the older people.

***punchón***

This introduced biennial (*Verbascum thapsus* L.) is found in disturbed areas on the valley floor and mountain slopes. It is used in a hemorrhoid mixture with ***punche***

**mexicano.** It is available in the local pharmacies which obtain it from New Mexican sources (*Bye & Linares* 12,654).

**quelite;** lamb's quarters; wild spinach

Some weedy plants found on the valley floor and lower forested slopes are probably referable to both *Amaranthus retroflexus* L. and *Chenopodium berlandieri* Moq. **Quelites** are collected usually in June. Although no specimens were collected, the description from people in the valley suggest these plants. The young leaves of lamb's quarters are prepared and consumed as edible greens in the early spring (López T. 1975). This "wild spinach" is thought to be of special value in "building strength, keeping healthy" (Schulman and Smith 1962:69).

**verdolagas;** purslane

An annual weed, possibly *Portulaca oleracea* L., grows in disturbed areas of the valley. In the early summer (usually in July) the succulent leaves and stems are collected. They are eaten cooked and are valued for their blood-strengthening qualities (López T. 1975; Schulman and Smith 1962). The young stems and leaves can also be preserved using a canning process. Later, they are cooked with onion and garlic.

**yerba del chivatito**

A red herb, possibly *Teloxys graveolens* (Willd.) Weber (*Chenopodium graveolens* Willd.), is similar to **lentejilla** but much redder in color. It grows in moist sites between the lakes and foothills. A tea of the plant is said to be good for the heart, to treat "el frío en el estómago", and for children who wet the bed. The infusion used as a bath is a treatment for fevers and for scarlet fever in order to prevent the hair from falling out.

**yerba del manso**

This herb is said to grow in the mountains. *Anemopsis californica* (Nutt.) Hook. & Arn. (also known as **yerba mansa**) is not reported in the Valley of San Luis but plants originating from northern New Mexico are available in the pharmacies (*Bye & Linares* 12,645). **Yerba mansa** is mixed with **punche** and applied as a suppository in the treatment of hemorrhoids.

**yerba de la manzanita**

This plant, possibly *Arctostaphylos uva-ursi* (L.) Spreng., is a popular medicinal herb, which is more common in New Mexico.

**yerba del oso; yerba joso**

A herb with red fruits, possibly *Heracleum sphondylium* L., grows on the slopes of the mountains. An infusion is used as a gargle for sore throats and as a tea for fever and rheumatism.

**yerba de la sangre**

A spreading plant referable to *Mahonia repens* (Lindl.) G. Don of the mountains has leaves which turn red in the fall. A tea is drunk to "limpiar la sangre" (clean the blood) and "engrosar la sangre" (thicken the blood) when one is anemic.

**yerba de zorrillo**

This annual herb, thought to be *Teloxys graveolens*, grows in New Mexico. A sun tea is made from the plant. It is sold in the pharmacies and originates from commercial suppliers (Bye & Linares 12,272).

**yerbanís; hierba anís**

A dried herb ordered from Santa Fe, New Mexico, is used in flavoring the "biscochitos," the traditional sweet breads of "El Valle." **Hierba anís** available in Lujan's Place in Santa Fe is *Oligosporus dracunculus* (L.) Poljakov (syn., *Artemisia dracunculus* L.) (Bye & Linares 12,690) which is collected locally. It is reported from the basin of San Luis also (Dixon 1986). **Anís** (*Pimpinella anisum* L.) and **anís estrella** (*Illicium verum* L.) are also used as flavoring and are available in the local pharmacies. They are also popular "remedios" for alleviating stomachaches.

**yerbabuena; yerba buena**

An herb cultivated in the gardens and obtained in the pharmacies, probably *Mentha X piperita* L. and *Mentha spicata* L., is used in the same manner as *Mentha arvensis*. *Mentha spicata* is reported in moist sites on the valley floor (Dixon 1986).

## DISCUSSION

The Valley of San Luis is a fertile ground for studying the ethnobotany of Hispano American plants. The concepts and employment of medicinal plants are particularly rich but changes are underway that threaten these customs with abandonment in the near future. Not only can one identify the movement and strength of the centralized powers of New Spain and later Mexico at its northern limit, but also the influence of Native Americans on the Hispanic settlers isolated for generations from their parent culture. An example of the hybridization of Hispanic and Indian customs have been suggested by the current use of medicinal plants such as Spanish herbs **alhucema** (*Lavandula officinalis*) and **manzanilla** (*Chamomilla recutita*) and such native roots as **oshâ** (*Ligusticum porteri*) and **inmortal** (*Asclepias* sp.) (Appelt 1985; Moore 1977; Schulman and Smith 1962). These ideas are further developed for **oshâ** below.

The dynamics of plant usage and concepts can be investigated by comparing the medicinal and edible herbs of "El Valle" with those of other parts of the US and Mexico. Although this is not the intent of the present discussion, preliminary examination suggests that the Hispanic settlers of the San Luis Valley share more with the residents of northern New Mexico (e.g., Santa Fe) than with those further south. To illustrate this pattern, one can consider the "chuchupate" complex (Linares and Bye in press). The Hispanic residents of the upper reaches of the Rio Grande (i.e., San Luis Valley and Santa Fe region) use the term **oshâ** for *Ligusticum porteri* and recognize **chuchupate** as a synonym. Along the mid section of the Rio Grande (i.e., southern New Mexico) which was connected commercially with Chihuahua and Mexico City by a central route, **chuchupate** and **hierba de cochino** are applied to the same species. In the Lower Rio Grande, **chuchupate** with the similar uses refers to *Myroxylon balsamum* (L.) Harms, an aromatic stem of a tropical tree that is traded up the eastern route through Monterrey.

The prevalence of an indigenous common name for *Ligusticum porteri* and its use illustrate the importance of acquisition of a local resource and its subsequent modification in relative isolation. **Oshâ** is probably derived from a term used by Native American Indians (Cobos 1983), possibly the Pueblo Indians of present-day northern New Mexico. The Tewa Indians applied the name **'osa** to *Ligusticum porteri* which was also known

to the Mexican traders and originally identified as "*Angelica*" (Robbins *et al.* 1916). *Chuchupate* is a term associated with New Spain (Falcón 1777) and may be modified from a Nahuatl term such as *chichipatli*. The early Spanish settlers often modified "chi" to "chu" (see *chuchumeca* in Santamaría 1978) and "patli" to "pate". If *chuchupate* is based upon *chichipatli*, it would mean 'dog medicinal herb' from *chi* ('dog') and *patli* ('medicine', 'medicinal herb') (Siméon 1984). This is not unreasonable since many odoriferous plants are associated with terms dog, fox and coyote.

Two forms of *oshâ* are recognized in northern New Mexico (Curtin 1965; Moore 1979) and in southern Colorado. One form is a thin, wild plant of the mountains (*oshâ de la sierra*) and has white flowers. The other form is a robust, cultivated plant (*oshâ del jardín; oshâ del campo*) that has yellow flowers. The former is *L. porteri* and is said to be impossible to cultivate from seeds or from transplants in New Mexico (Moore 1979) and Colorado. The latter is reported to be *Angelica pinnata* S. Wats. (Curtin 1965; Moore 1979). Based upon Curtin's description and illustrations (1965: p. 139; figs. 9 and 19), the yellow-flowered *oshâ* is *Levisticum officinale* (lovage) given the flower color, the ternately compound leaves with cuneate leaflets with coarsely dentate margins, the conspicuous involucre of narrow reflexed bracts, and the densely branched stems (*Angelica* usually has white flowers, pinnately compound leaves with ovate to lanceolate leaflets with serrate margins, involucre bracts lacking, and diffusely branched stems). In northern New Mexico, lovage is cultivated and known as an escape (Martin and Hutchins 1981). It is considered to be a native of southern Europe and is valued for its aromatic fruits (Bailey and Bailey 1976).

The role of *oshâ* in the Hispano American culture of southern Colorado as well as in adjacent New Mexico appears to have been strongly influenced by Native Americans. The use of its Pueblo Indian name rather than a Hispanized central Mexican name that was accepted in New Spain and that name's application to an introduced European cultivated herb (*Levisticum*) argue that *Ligusticum porteri* was adopted by the early Spanish and Mexican settlers of New Mexico and Colorado from the local Indians. Its employment today reflects the influence of both Native American customs (e.g., cough and gastrointestinal medicine) as well as Hispanic concepts (e.g., protection from evils of "brujos" and "enconadores").

The residents of "El Valle" are aware of the differences between wild plants (those from the mountains or "de la sierra") and anthropogenic plants (those from fields, yards, roadsides etc. or "del campo" and "de la casa"; and those cultivated in the garden or "del jardín"). In some cases, the plants are different species as in the *oshâ* discussed above or *jara* (*Populus angustifolia* and *P. nigra*). In other cases, the plant may be the same species such as *plumajillo* (*Achillea lanulosa*) or *poleo* (*Mentha arvensis*). It is a general rule that the plants from the mountains are considered more effective than those from other places. Different species of herbs are recognized as being related. In the case of *Achillea lanulosa* and *Artemisia frigida*, both share the name *plumajillo de la sierra* and are employed for gastrointestinal ailments.

The herb collectors are also aware that the season of gathering medicinal roots is important. The roots (e.g., *inmortal* and *oshâ*) are gathered in the fall after the growing season, when the above-ground herbage has died back and the roots are large and solid with stored substances. Collection in the late spring and summer is avoided when the roots have exhausted their storage products from the previous season. Although not a "remedio" of the San Luis Valley, the perennial herb *Conium* (a member of the same family as *Ligusticum*), has been shown to use alkaloids (a secondary metabolite) like re-cycling co-enzymes in the fruiting process (Fairbairn 1971). Therefore certain biodynamically active principles would not be present in the same concentration in the root prior to or at the time of flowering as after the growing season. In order to harvest the root at the time of peak effectiveness, one would need to gather it after the substances

had been replenished and stored in the root in preparation for the following season and not during the period of mobilization and utilization of the substances in the natural plant life cycle.

Concepts and names of plants native to "El Valle" often have Spanish roots. *Garambujo* is applied to a wild spiny gooseberry (*Ribes leptanthum*) with a small, sweet, many-seeded, purple-colored fruit. Today in Mexico, *garambullo* is most frequently applied to the small, sweet, many-seeded, purple-colored fruit of the cactus, *Myrtillocactus geometrizans* (Mart.) Console. In New Mexico, *garambullo* is used for gooseberry (Cobos 1983). The Spanish terms *poleo* and *menta* are applied to native as well as introduced species of *Mentha*. These cases suggest that structural and chemical (e.g., odor and flavor) characteristics of local plants are similar to those of Mexican and European plants with which their ancestors were familiar.

The pharmacies play an important role in selling certain "remedios" to those who can not have access to the plants in the fields or mountains or who do not know of local sources. Of the 35 taxa obtained from the pharmacies, 13 (ca. 37%) were collected locally. Of the 22 species purchased from out of state, only 2 (ca. 6% of the total sample) were also supplied from local sources. They are *Achillea* and *Ligusticum*. Of the local plants, all occur as weeds on the valley floor and slopes except *Citrus* (which is cultivated in greenhouses) and *Ligusticum*. The latter plant is of interest because of the great demand yet limited distribution and declining abundance in the mountains. To date, *oshã de la sierra* has not been cultivated successfully. The scarcity of this root may be an important factor for importing it from Arizona suppliers and hence the introduction of the synonym, *chuchupate*, under which it is sold.

It should be noted that the pharmacies, like general stores, sell a variety of goods. Herbs are sold as a convenience to the customers and not as prescription medicine. The customers know the uses of the "remedios" and hence the pharmacies play an important role in maintaining part of the cultural heritage of "El Valle."

Consequently, our present-day ethnobotanical knowledge of the Spanish Americans in "El Valle" does not indicate a simple adoption of local customs nor the dominance of introduced traditions from the south. The mixing of Native American and Hispanic ideas about plants was mediated by a selective diffusion of local and exotic knowledge in an isolated cultural and natural environment.

With today's rapid acculturation of the Hispanic people in "El Valle," the loss of several generations of ethnobotanical knowledge and experience is imminent. Fewer Hispano American young people learn about and use traditional plants. Many are leaving "El Valle" in search of employment (López T. 1975). Middle-aged people once may have used or heard of certain plants but no longer employ them. This situation parallels the pattern of the older people speaking mostly or only archaic (16th and 17th century) Spanish while the children are unable to communicate in their mother tongue. Local citizens, students and teachers recognize the urgent need to rescue their ethnobotanical traditions from further erosion due to Americanization. "Foreign" ethnobotanists (e.g., those from Colorado, New Mexico and Arizona) are needed to assist them in documenting their botanical knowledge.

## CONCLUSIONS

A brief study of the plants used traditionally by the Hispano Americans in south-central Colorado recorded 57 taxa. About 75% ( $n = 43$ ) are native plants while about 25% ( $n = 14$ ) are introduced. In addition to gathering these herbs in the mountains, fields, and gardens, the local pharmacies sell 22 species obtained from commercial suppliers. About 41% ( $n = 9$ ) of the plants are found in the region. The employment of medicinal plants suggests that the Native American Indian culture has had as strong an influence on Hispanic peoples as the Mexican Spanish culture.



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**People of the Desert and Sea: Ethnobotany of the Seri Indians.** Richard Stephen Felger and Mary Beck Moser. Tuscon, Arizona: University of Arizona Press, 1985. \$65

It is a wonderful thing that not just ethnobotany is in this work; too narrow a focus would have spoiled the richly detailed picture Felger and Moser have had the privilege to record. As it is, *People of the Desert and Sea* is a pleasure to read and a treasure for the library.

As the reader pours over the long section which takes up each of the 400-plus plants recognized by the Seri, the value of having a linguist and an ethnobotanist working together is appreciated in a personal way. The plant names are given in the binomial standard of the dominant culture, in Seri, in translation from Seri to English, both gloss and free translation. As you read them all, a sense comes of how the Seri evaluate the things of their world, and this is not an interpretation by ethnographers, but as close as one can come through words to directly seeing the thought of other human beings.

The volume's contents cover virtually everything most ethnographies have to offer: material culture, religion, food and water gathering techniques, recreation, music, world view, relation to other groups. In spite of the fact that this is more than expected for an ethnobotanical treatise, the reader will become so interested that he will want more. For instance, the methodology of research is hinted at in many places, but one comes to want a full explanation of how informants were acquired, who they were over time, whether there were disagreements over data and how these were resolved.

Appendix B, *Seri People Named in the Text* is confusing and tantalizing, has loose ends and hints at more good stories and incidents yet untold. It sparks another desire: do give us a genealogical chart for at least the Astorga family line. And if it is known, describe how prominent family lines or individuals figure in this chiefless culture, before cash economy and now.

When researchers have spent twenty and thirty years patiently teasing out information about a people struggling with the pressures of corrosive change, one might expect the tale when told to be grim or boring, or both. These authors give us a non-judgemental account that is meticulously precise, lays out uncertainties and contradictions with no excuses, and is neither dry nor maudlin. The style seems to reflect the subject, people described to be "... gregarious, outgoing and aggressive ... sharp sense of humor ... highly independent, nonconforming, and quick to adjust for the sake of convenience."

There are some 400 drawings, maps, and superb black and white photographs which probably justify the cost of the volume in themselves. The photos span many years of Seri contact with cameras; whoever did the printing is very competent. Many of the plants were photographed by Felger, who has an intense sense of composition and an eye for capturing the important detail. Almost, the reader forgets there are no color shots.