Some Traditional Medicinal Plants of North Region from Puebla, Mexico: Uses and Potential Pharmacological Activity of Rumex spp.

Jerezano Alberto VD1*, Pazos Diana del C2* Ríos Saúl A3, Tepancal-Gomez E4, Salas-Mendoza E4, Villanueva L4, Perez-Perez I5, Murrieta M5, Delgado Francisco R6, Tamariz J6 and Garduño Leticia S7

1School Stomatology, Benemérita Universidad Autónoma de Puebla, Arias y Boulevar S/N, Col El Carmen, C.P. 73820. Teziutlán, Puebla, México
2School Psychology, Benemérita Universidad Autónoma de Puebla, Arias y Boulevar S/N, Col El Carmen, C.P. 73820. Teziutlán, Puebla, México
3School Medicine, Benemérita Universidad Autónoma de Puebla, Arias y Boulevar S/N, Col El Carmen, C.P. 73820. Teziutlán, Puebla, México
4Department of Medical Chemistry, ENCB-IPN, Prol. Carpio y Plan de Ayala, 11340, México DF, México
5Department of Pharmacy and Preclinical Toxicology, ENCB-IPN, México DF, México
6Department of Organic Chemistry, ENCB-IPN, Prol. Carpio y Plan de Ayala, 11340, México DF, México
7Department of Investigation and Graduate Studies, Instituto Tecnológico Superior de Teziutlán, Fracción I y II Aire Libre S/N. C.P 73960. Teziutlán, Puebla, México

Abstract

This paper, based on the traditional knowledge and research, aims to provide an overview of the current state of local and traditional medicinal uses, pharmacological potential activities, toxicity and safety of some medicinal plants from the north region of Puebla State, Mexico. The information about use medicinal plants was obtained by a poll the therapists from Traditional Medicinal Hospitals from Ayotoxco, Xalacapan and local market of Teziutlán. The information obtained of the empiric knowledge from therapists of Traditional Medicine about of extracts, whole and parts of some plants, like are used on the treatment of several health disorders common in the north region of state Puebla, such as pains, infections, fever, constipation, diarrhoea and periodontals disorders is discusses. Rumex spp widely distributed as wild plant in the northern region of Puebla, consumed in salad, presents a variety of applications to treat oral diseases and antipycetic as a poultice, has aroused great interest to be studied by our research group. Despite its historical and cultural importance, the “traditional” use of plants has decreased.

Keywords: Rumex spp.; Traditional herbal medicine; Medicinal plants; Extracts; Antipyretic; Anti-inflammatory; Therapists

Introduction

The plant kingdom has been the main source of medicine of humanity for hundreds of years and there is a vast accumulation of knowledge inherited for centuries. Scientific interest in medicinal plants in the past 40 years has led to the discovery of new molecules and active ingredients derived therefrom that give answers to very serious health disorders. Many plants and parts thereof, usually dry, still used worldwide as home remedies or as ingredients in herbicides, spiritual therapies, fermented drinks, poultices, ointments by therapists of the Traditional Herbal Medicine (THM) by their medicinal properties [1-5]. Not surprisingly, that these products are first or second option in treatment of important diseases [1]. Examples, soy isoflavones (Glycine max), [6] for menopause and climacteric; silymarin of milk thistle (Silybum marianum) as hepatoprotective [7,8] taxol from yew (Taxus baccata), for different types of cancer; [9,10] galantamine the Galanto (Galanthus nivalis) for Alzheimer’s disease; [11] extracts of ivy (Hedera helix), as antitussive and expectorant [12]; the partenólids of migranella (Tanacetum migranella), in cases of headaches and migraines; [13] flavonoids ginkgo (Ginkgo biloba) in cognitive disorders [14]. In Mexico 7,000 species are used as medicinal plants. Traditional Herbal Medicine of the State of Puebla is still unfinnshed and information scattered on few works, papers, magazines, etc., both local, national and international not just give us a general idea of what this treasure is supposed of the nature [15,16]. This paper is not intended to address all Mexican medicinal flora, if not devoted to the north region of State Puebla and especially the flora Teziutlán. We hypothesize that the exploration of research approaches over time prove traditional herbal medicine could lead to new areas of research of medicinal plants. Our perspectives include a research of the practice of the same Herbal Medicine in the north region of Teziutlán Puebla. Though this discussion must include some examples of herbs from Teziutlán, Puebla, Mexico only, the focus of our discussion underscores traditional herbal medicine strategies that can be used for the community and the Family and Community Medicine program.

Study area

Teziutlán is located north of the State of Puebla, in the northern part of Neovolcanic, almost bordering the state of Veracruz, between parallels 19°46’ and 19°58’ north latitude; meridians 97°19’ and 97°25’ west longitude; altitude between 700 and 2400 m (Figure 1). Teziutlán bordered on the north by the municipalities of Hueyapan and Huayamalco; east with the municipalities of Huayamalco and Xitutepec; south with the municipalities of Chignautla and Chignautla; west with the municipalities of Chignautla and Hueyapan. It occupies 0.3% of the state’s area 92 518 km2. It has 33 locations and a total population of 92,246 inhabitants, with Nahualt and Totonac main dialects [17]. Within this area we find the Cuenca called “La Gran Caldera de Teziutlán” [18]. The predominant soil types in this area are

Keywords: Rumex spp.; Traditional herbal medicine; Medicinal plants; Extracts; Antipyretic; Anti-inflammatory; Therapists

Study area

Teziutlán is located north of the State of Puebla, in the northern part of Neovolcanic, almost bordering the state of Veracruz, between parallels 19°46’ and 19°58’ north latitude; meridians 97°19’ and 97°25’ west longitude; altitude between 700 and 2400 m (Figure 1). Teziutlán bordered on the north by the municipalities of Hueyapan and Huayamalco; east with the municipalities of Huayamalco and Xitutepec; south with the municipalities of Chignautla and Chignautla; west with the municipalities of Chignautla and Hueyapan. It occupies 0.3% of the state’s area 92 518 km2. It has 33 locations and a total population of 92,246 inhabitants, with Nahualt and Totonac main dialects [17]. Within this area we find the Cuenca called “La Gran Caldera de Teziutlán” [18]. The predominant soil types in this area are

Received May 15, 2016; Accepted April 01, 2016; Published April 06, 2016

Citation: Jerezano AlbertoJD, Rios Saula, Tepancal-Gomez E, Salas-MendozaE, Villanueva L, et al. (2016) Some Traditional Medicinal Plants of North Region from Puebla, Mexico: Uses and Potential Pharmacological Activity of Rumex spp. Nat Prod Chem Res 4: 223. doi: 10.4172/2329-6836.1000223

Copyright: © 2016 Jerezano Alberto JD, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.
Rumex spp., show inhibitory effects, moderate to high activity against influenza in Mexico [20]. There are some papers about the antipyretic properties of metabolites or hexane extracts compared with the form of use in the northern region of Puebla, this has aroused great interest to be studied by our research group. Farre et al. has reported anti-inflammatory properties of aqueous extracts from Rumex patientia [21], EtOAc extracts, anthraquinones and naphthalenes isolated from the root of Rumex nepalensis, show inhibitory effects, moderate to strong on COX-1 (compared with indomethacin as positive control) and COX-2 (compared with celecoxib) [22]. Analgesic activity is observed at high doses of methanolic extract of Rumex abyssanucus which has up to 70% protection in mice induced pain compared with aspirin and morphine as positive controls [23]. There are studies of antiviral activity of some molecules isolated from Rumex acetosella, Rumex crispus, Rumex japonicus, Rumex dentatus, Rumex vesicarius, Rumex hymenosepalus, among other [27]. The Table 2 shows some reports on the traditional use of Rumex spp. and parts used.

Results and Discussion

During the period 2014-2015, interviews were conducted with different therapists around the northern region of the state of Puebla, such as the Hospitals of Traditional Medicine Herbal of Ayotoxco, Xalacapan and local markets Teziutlán. Healers or therapists are a group mostly women, urban and middle-aged-advanced, which have become in medicinal plants specialists with the explicit mission of “cure people with the use of medicinal plants.” The information collected is presented in Table 1. The therapist uses the plants or preparation cold for a hot disease and plant or preparation warm for a cold disease.

The information obtained in Table 1 shows that Rumex spp. is used (one or two fresh leaves) as an antipyretic in the treatment of fever in children as poultice with animal fat, until get the dry leaves, suggesting that the nonpolar components are topically absorbed through the dermis, generating its antipyretic activity. Few reports of the use of Rumex as antipyretic agent, as in the case of traditional medicine in Turkey (Rumex patientia) [20]. There are some papers about the antipyretic properties of metabolites or hexane extracts compared with the form of use in the northern region of Puebla, this has aroused great interest to be studied by our research group. Farre et al. has reported anti-inflammatory properties of aqueous extracts from Rumex patientia [21], EtOAc extracts, anthraquinones and naphthalenes isolated from the root of Rumex nepalensis, show inhibitory effects, moderate to strong on COX-1 (compared with indomethacin as positive control) and COX-2 (compared with celecoxib) [22]. Analgesic activity is observed at high doses of methanolic extract of Rumex abyssanucus which has up to 70% protection in mice induced pain compared with aspirin and morphine as positive controls [23]. There are studies of antiviral activity of some molecules isolated from Rumex acetosella, Rumex crispus, Rumex japonicus, Rumex dentatus, Rumex vesicarius, Rumex hymenosepalus, among other [27]. The Table 2 shows some reports on the traditional use of Rumex spp. and parts used.

Medicinal plants (Traditional knowledge)

Since the early days of discovery of the American continent, the way to cure the natives was praised, and sent to Spain remedies and therapeutic elements. In 1571, Felipe II sent to Francisco Hernandez to make scientific expeditions, to carry out a well-documented in medicine and medicinal plants in the states of Mexico, Morelos, Puebla, Tlaxcala and Hidalgo. He collected all the information written in his work called History of the Plants, resulting in sixteen volumes of natural history of this land (1571-1576), containing a wealth of information about Mexican plants, and the description and drawings, giving special interest to medicinal plants [15].

The term of “healers” or “therapists traditional herbal medicine” originated in 2002 with the Program of Hospitals Integrals with Traditional Medicine (PHITM) in the State Puebla, whose main objective is to provide mixed health services and spaces where traditional medicine and allopathic medicine is developed in an intercultural framework. This mixed model of health care was applied at that time in five regions with high marginalization of the State of Puebla: Cuetzalan del Progreso, Ayotoxco, Huehuetla, Coxcatlán y Tulcingo de Valle. Traditional medicine modules operate from then with hospital where traditional therapists provide care, recognized by their communities in different specialties such as are midwives, healers, bone setters, herbalists, etc. [19]. Therapists are recovering the knowledge of medicinal plants communities. Plants are grown and gather and then the therapists offer to people their knowledge and treatments at affordable prices.

Descriptive taxonomy

The plant is 50 cm tall, with perennial and woody roots some things that grow deep into the soil moist, and with an erect striated and single stem. The leaves are edible, oblong, 5 to 10 cm long, arrow-shaped at its base, with wide and long lower leaves without petiole upper leaves, and often has a scarlet dye (Figure 2).

The flowers are delicious, reddish green male and female redder (such as R. acetosella), and appear especially in the months of June and July. As the flowers mature, they become purple. Mature seeds have a high nutrient content.

the andosols and regosols, which have a dark gray color on yellowish brown layer surface and in the deeper layers are rich in organic matter and have a high nutrient content.

Weather

Temperature range 12 to 22°C, precipitation range 1 100-3600 mm, generally mild and humid with rains all year (60%), semi wet with rain all year (31%) and temperate humid with abundant rainfall summer months. As the flowers mature, they become purple. Mature seeds are desired and have a high nutrient content.

Species of interest to medicinal plants [15].

Figure 1: North region of the State Puebla, municipality of Teziutlán, Puebla, Mexico.
| Medicinal Plant | Scientific Name | How To Use | Traditional Use |
|-----------------|----------------|------------|-----------------|
| Albahaca         | Ocimum basilicum L. (a) | Make corsages and "ramear" all over the body as sweep. Boil some leaves in water and take. Boil a bunch and rinse after bathing. | Clean spiritual. Stomachache. Postpartum bath |
| Alelia           | Matthiola incana (a) | Boil and let it sit in the water, use water to rinse the end of the bath | Frightened children to bathe |
| Arnica           | Tithonia diversifolia (Hemsley) A. Gray (a) | Alcoholic infusions of leaves to "rub". Poultices of crushed leaves | Anti-inflammatory treatment |
| Azomite          | Barkleyanthus salicifolius (a) | Tea leaves taken | Stomach ache |
| Cancerina o hierba de angel | Hippocreata excelsa Kunth (a) | The whole plant is boiled in 1 liter of water and when no longer so hot wash affected area | Wounds |
| Clavel criollo   | Dianthus caryophyllum (a) | Preparés tea with flowers | Calms the cough |
| Coquillo, Estropajillo | Cuscuta corymbosa Ruiz & Pavón (a) | Boil the plant and let stand, use the water for bathing babies and children. Boiled plant is used as a scourer to carve children. | Cure the "shock" and "aljorre" in children |
| Dedo de niño     | Sedum rubrotinctum (Crassulaceae) (a) | Cut leaves and squeeze out the liquid until it contains and apply a few drops in the ear or eye if it is the case. | Eye and ear infection |
| Espinolosilla    | Loeselia mexicana (Lam.) Brandgeee (Ulwitz) (a) | It cut 3 to 4 sprigs for ½ liter of water, taken in the morning for 3 days. | Bile |
| Espuela de caballero | Delphinium (b) | Boil the branches and let stand, water used as "rinse" during bath. | Postpartum bath |
| Floripondio      | Brugmansia candda Pers. (a) | Fresh flower is crushed and puts a little alcohol, smeared on the back. | Back pain |
| Hierba del sol   | Crusea longiflora (a) | Boil two leaves in 1/2 liter of water and drink it. Note: when the plant is freshly cut green but after boiling turns a deep red color. | Fever |
| Hierba dulce     | Lippia dulcis Trev. (a) | The leaves are boiled, allowed to cool a little and take a little sweetened with honey. The leaves are boiled and douches are made after childbirth or abortion. | Cough, postpartum or post treatment abortions. |
| Hierba Maestra (ajenjo) | Artemisia absinthium L. (a) | Aqueous infusion of leaves, take as water. | Bitter and to treat shock, bile, courage, diabetes taste, and stomach pain. |
| Huichin          | Verbesina persicifolia DC. (a) | Whole plant is boiled and washed the infected part. | Wounds |
| Ixtanzokpikxiult | Rumex spp (a) | A twig it is used in 1 liter of water, boiled and taken as the pain persists. | Stomach ache |
| Lengua de vaca   | Rumex spp (a) | 3 leaves are boiled in ½ liter of water and taken for 3 days. Two leaves as a pouflice with lard and paper in the abdomen. Boil two to three leaves of the plant dry and mouthwashes are made. | Diarrhea, courage, wounds, bile, rheumatism. Reduce fever in children. Oral diseases. Treatment of viral diseases. |
| Malva            | Malva parviflora L. (a) | The whole plant is boiled and washed the infected part. | Wounds. Infections |
| Marrubio         | Marrubium vulgare L. (a) | The whole plant is boiled and washed the infected part. | Wounds. Infections |
| Matahuacal       | | Whole plant is boiled in 1 liter of water, let cool slightly and put in place affected. | Acne |
| Mazote           | Bidens pilosa (a) | The leaves are boiled and taken as water. | stomach ailments |
| Mejorana         | Origanum majorana L. (a) | Two or three twigs are cut into 250 ml, to make them in tea is taken warm. | Stomach ache |
| Mirto            | Salvia spp. (a) | Boil leaves and use as a mouthwash after bathing. Make corsages with sheets for "ramear" whole body. | In "cold" diseases and oral diseases. To scare |
| Nogal            | Juglans regia L. (a) | Infusion of leaves. Mouthwash. Rinses the scalp. | Treatment of retracting the gingiva. Natural dye for darkening hair. |
| Poleo            | Mentha pulegium L. (a) | 2 stripes are placed in 250 ml of warm water and taken | Indigestion. Stomach ache. |
| Romero           | Rosmarinus officinalis L. (a) | | Treatment of "cold" diseases. Postpartum bath. Hair Treatment (prevents hair loss). |
| Sauco            | Sambucus bipinnata (xomet) (a) | 4 to 6 leaves are boiled in 1 liter of water; it is taken as hot as possible. | Threw up. Dizziness |
| Toloache         | Datura stramonium L. (a) | Whole plant is boiled, allowed to cool a little and make washes uterus. | Wash uterus when you have cervical cancer. |
| Toronjil         | Agastache mexicana (a) | Macerated in alcohol and take after meals | Aids digestion and stomach ailments |
| Vara milagrosa. Palito de siete corazones | Heematoxyllum brasiliatto Karst. (a) | The bark is boiled and taken in tea or water weather | Depression |

Table 1: Traditional uses and local names of Medicinal Plants from north region of Puebla.
Maceration process was chosen for the antipyretic in traditional Rumex crispus. Hemorrhage, wounds. Antimicrobial.

Traditional medicinal use parts of Food (soups, sauces and salad, the leaves have a pleasant sour taste. Oxalic intoxication has at times been reported, mainly in children, due to the high oxalic acid content of the plants [21]. The edible variety is known as the language of elongated or pointed Cow (Rumex crispus) and is native to tropical America [27]. The genus Rumex is characterized by the accumulation of anthraquinones, naphthalens, flavonoids, stilbenoids, carotenoids, fenols, trans-resveratrol y rumexoid [35,38,39]. Table 3 shows the structures of some compounds isolated from Rumex species [38,39].

Collects: Plants can be harvested from wild or cultivated plants. Rumex collection was conducted in a scientific manner of wild plants. In this first stage plant breeding is not controlled. Wild plant is where their demands are met shadow and light. Research has shown that light is a contributing factor to determine the amount of plant components as in the case of alkaloids in Datura spp light for training is not required [40]. It is also considered the altitude and climate (tempering with rains all year) from the northern region of the state of Puebla, which have a great influence on the population of plants. For Rumex spp, it grows adequately in Teziutlán and San Juan Xuutepec, it shows that in Ayotzino, which is another different altitude and amount of rain, is not Rumex spp. Soils differ from one another both in their physical and chemical properties. The soil is composed of mineral material, formed by the action of weathering of rocks, decaying organic matter or humus. In the case of the northern region of the state of Puebla soil type is andosol predominantly volcanic soil dark and very porous. The time when each plant is collected generally has considerable importance, since the amount, and sometimes the nature of the active ingredients, are not constant throughout the year. Bettas and Fairbair showed that the content of C-heterosides, O-heterosides and free anthraquinones in the developing leaves of Rhamnus purshiana it fluctuates markedly throughout the year [41]. An investigation of changes in the constituyentes in the collected plants Rumex spp in different locations and periods of vegetation revealed that the total amount of phenolic compounds are increased through the cycle of the plant, but decreases in samples of greenhouses (controlled) compared with those observed in the field samples (wild) [42]. Aerial parts of Rumex spp, free fresh leaves dew or attacked by insects, were collected.

Drying: The drying process can be slow or fast. When it is necessary to stimulate the enzymatic action, drying should be slow, at moderate temperatures. If it is necessary to avoid enzymatic action, drying should be started as soon as possible after collection, as in the case of essences [40]. With the leaves of Rumex spp, the drying was performed outdoors without artificial heat for weeks to ensure maximum enzymatic action.

Trituration: The dried leaves of Rumex spp were grinded in food processor Braun Multi quick to a fine powder.

Exhaustive extraction: Maceration process was chosen for the collection of the active ingredients (prolonged infusion) with solvents of different polarities followed by percolation (addition of fresh solvent to replace the solvent has passed up through the ground powder) [43]. Initially the medicinal plant was extracted with a nonpolar solvent (hexanes), followed by exhaustive extraction with AcOEt and EtOH. Excess solvents was removed under reduced pressure to obtained dark solid (Hexanoic extract) and dark oil (AcOEt and EtOH extract), the yields show in Table 4.

Conclusion

Summarizing these information, the use of medicinal plant comprising highly complex mixtures of up to several hundred compounds in Traditional Herbal Medicinal (THM). The medicinal plants are very economical to production and has pharmacological activity potential. THM, in full, is considered as “primary medicine” with botanical qualities to “help” or “protect.” Therapists use medicinal plants, depending on the disease (cold or hot) in the case that the plants are used alone or in combination with other herbs to prepare plasters, poultices, medicinal teas. Despite its historical and cultural

Table 2: Traditional medicinal use parts of Rumex species.

| Scientific name                | Part of the plant | Traditional use                      | Reference |
|--------------------------------|-------------------|-------------------------------------|-----------|
| Rumex patientia                | Leaves            | Antipyretic in traditional medicine | [20,28]   |
| Rumex scutatus                 | Leaves            | Antipyretic in Turkish, anti-       |           |
| Rumex acetosa (Herba Rumicis  | Whole             | Tx. viral, rheumatism.              | [25,29]   |
| acetosa concisa                |                   |                                     |           |
| Rumex scutatus L.              | Root              | Hemorrhage, wounds.                 | [30]      |
| Rumex japonicus                | Root              |                                     |           |
| Rumex acetosella,              | Leaves            | Food (soups, sauces and             | [31-33]   |
| aceta, crispus, vesicarius     |                   | salads).                            |           |
| Rumex hymenosepalus,           | Stems, leaf and   | Antioxidant, Antimyocobacterial     | [34-36]   |
| Rumex vesicario                | roots             | in skin problems, gastrointestinal   |           |
|                                |                   | disturbances sore.                  |           |
| Rumex dentatus                 | Whole             | Antimicrobial.                      | [37]      |

Traditional medicinal in north region of Puebla

In the mountains north of Puebla, community commonly use Rumex spp as an astringent in treating diarrhea (indigestion) and externally to control bleeding and rashes, sores in the mouth. Mainly used THM in Teziutlán as an antipyretic in febrile episodes like poultries (comfortativos), based on lard with paper in the abdomen of infants. They are also used in the treatment of rheumatism, jaundice and cooked the roots are used as a tonic. In infusions, dry leaf as an antiseptic in mouthwashes for periodontal diseases (inflammatory processes of the gingiva) and bleeding. It has been used as a dietary supplement useful in the treatment of influenza and viral infections such as herpes repeated.

Food: The cooked “lengua de vaca” is used in most of the region as a companion to meat dishes (mole verde, eggs) or broth. Edible in salad, the leaves have a pleasant sour taste. Oxalic intoxication has at times been reported, mainly in children, due to the high oxalic acid content of the plants [21]. The edible variety is known as the language of elongated or pointed Cow (Rumex crispus) and is native to tropical America [27]. The genus Rumex is characterized by the accumulation of
### Table 3: Structures of some compounds isolated from *Rumex species.*

| Structure       | Substituents | Name                                      |
|-----------------|--------------|-------------------------------------------|
| **Anthraquinones** |              |                                           |
| ![Anthraquinones](image) |             |                                           |
| **Naphthalenes** |              |                                           |
| ![Naphthalenes](image) |             |                                           |
| **Flavonoids**   |              |                                           |
| ![Flavonoids](image) |             |                                           |
| **Stilbenoids**  |              |                                           |
| ![Stilbenoids](image) |             |                                           |
| **Phenols**      |              |                                           |
| ![Phenols](image) |             |                                           |
| **Coumarin**     |              |                                           |
| ![Coumarin](image) |             |                                           |

- **Anthraquinones**
- **Naphthalenes**
- **Flavonoids**
- **Stilbenoids**
- **Phenols**
- **Coumarin**
**Table 4**: Yields of Hex, AcOEI and ETOH extracts of leaves from *Rumex spp* the region Tezúltáin, Puebla.

| Hex (dark solid) | Yield* |
|-----------------|--------|
| 0.48            |        |

*The yield is given in percentage (%).

importance, the “traditional” use of plants has decreased. Further preclinical and clinical studies and investigations are needed to clarify the potential antipyretic action of extracts from *Rumex spp*, safety and efficacy therapeutic in the community practice as well as purification, isolation and elucidation of the components from extracts obtained.

**Acknowledgements**

We are grateful to MD. Esperanza Morales Pérez, Principal DGPI-BUAP, PhD. Hortencia Chavez Oseki, Principal School BotanyMUSCUL-BUAP, PhD. Jaime Meneses Guerra, Principal School Medicine-BUAP, MD. María de la Luz Bonilla Luis, Principal School Nursing-BUAP, MD. Vicente Andreí Martinez Valdés, Principal School Psychology-BUAP: Dr. Rodolfo Martinez Hernández, Director of Teaching and Research; Dr. José Gilberto Romero Martínez, Head of the Department of Health Research; Lic. Ma. del Socorro Adame, Ma. Ilda Parga Farga, Operational State Coordination of Traditional Medicine; MD. Verónica Hernández Escobar, Coordinator Traditional Medicine Module from Ayotocoxo, Veracruz; Biol. Analí Santos García, Coordinator Traditional Medicine Module from Ayotocoxo, Veracruz; and MD. Vicente Andrés Martínez Valdés, Principal School Nursing-BUAP, MD. Vicente Andreí Martinez Valdés, Principal School Psychology-BUAP: Dr. Rodolfo Martinez Hernández, Director of Teaching and Research; Dr. José Gilberto Romero Martínez, Head of the Department of Health Research; Lic. Ma. del Socorro Adame, Ma. Ilda Parga Farga, Operational State Coordination of Traditional Medicine; MD. Verónica Hernández Escobar, Coordinator Traditional Medicine Module from Ayotocoxo, Veracruz; Biol. Analí Santos García, Coordinator Traditional Medicine Module from Ayotocoxo, Veracruz; and MD. Vicente Andrés Martínez Valdés, Principal School Nursing-BUAP, MD. Vicente Andreí Martinez Valdés, Principal School Psychology-BUAP: Dr. Rodolfo Martinez Hernández, Director of Teaching and Research; Dr. José Gilberto Romero Martínez, Head of the Department of Health Research; Lic. Ma. del Socorro Adame, Ma. Ilda Parga Farga, Operational State Coordination of Traditional Medicine; MD. Verónica Hernández Escobar, Coordinator Traditional Medicine Module from Ayotocoxo, Veracruz; Biol. Analí Santos García, Coordinator Traditional Medicine Module from Ayotocoxo, Veracruz; and MD. Vicente Andrés Martínez Valdés, Principal School Nursing-BUAP, MD. Vicente Andreí Martinez Valdés.

**References**

1. World Health Organization (2003) Available Online on: http://www.who.int/medicinedcentre/factsheets/2003/fs134/en/.
2. Li C, He J, Tao L, Wang H, Jiang J, et al. (2013) Acarid mite infestations (Astigmata) in stored traditional Chinese medicinal herbs. Systematic & Applied Acarology 18: 401-410.
3. Dold ML, Cocks P (2006) The angel in the gourd: ritual, therapeutic, and protective uses of tobacco (nicotiana tabacum) among the tzeltal and tzotzil maya of Chiapas, Mexico. Journal of Ethnobiology 26: 60-81.
4. Groark KP (2010) Cultural significance of biodiversity: The role of medicinal plants in urban african cultural practices in the eastern cape, South Africa. Journal of Ethnobiology 30: 5-30.
5. Philippot L (2012) Hunting Knowledge and gathering Herbs: Rastafari bush doctors on the western cape, South Africa. Journal of Ethnobiology 32: 134-156.
6. Silva LR, Pereira MJ, Azvedo J, Gonçalvesa RF, Valenpão P, et al. (2013) Glycine max (L.) Merr., Vigna radiata L. and Medicago sativa L. sprouts: A natural sprouts: A natural source of bioactive compounds. Food Research International 50: 167-175.
7. Seef LB, Corto TM, Szabo G, Everson GT, Bonkovsky HL, et al. (2008) Herbal product use by persons enrolled in the hepatitis C Antiviral Long-Term Treatment Against Cirrhosis (HALT-C) Trial. Hepatology 47: 609-612.
8. Strader DB, Bacon BR, Lindsay KL, La Breque DR, Morgan T, et al. (2002) Use of complementary and alternative medicine in patients with liver disease. Am J Gastroenterol 97: 2391-2397.
9. Bozkov PV, Brukhín, VB, Moleva LR, Filonova LH, Grakhov VP, et al. (1999) Proliferative activity of callus cultures of Taxus baccata L. in relation to anticancer diterpenoid taxol biosynthesis. Biotechnology Letters 18: 1309-1314.
10. Tegeder H, Sadeghi-aladabi H (2013) Taxol and Related Compounds. Natural Products 101: 3159-3171.
11. Davis K (2016) Galantamine for Alzheimer’s disease and Alzheimer’s disease with cerebrovascular Disease. Practical Pharmacology for Alzheimer's Disease 1149: 35-61.
12. Widicumbe J, Ernst E (2009) Clinical cough V: complementary and alternative medicine: therapy of cough. Handb Exp Pharmacol : 321-342.
13. Shrivastava R, Pechadre JC, John GW (2006) Tanacetum parthenium and Salix alba (Mig-RL) combination in migraine prophylaxis: a prospective, open-label study. Clin Drug Invest 26: 287-296.
14. Farreppui A (2012) Beneficial Effects of Ginkgo biloba in Neurological Disorders, New York. Springer Science+Business Media, pp: 237-270.
15. Moreno Botello MC (1997) La botánica en Puebla. Elementos 4: 45-55.
16. Martínez-Moreno D, Alvarado-Flores R, Mendoza-Cruz M, Basurto-Peña F (2006) Plantas Medicinales de Cuatro Mercados del Estado de Puebla, Mexico. Bol Soc Bot Mex 79: 79-87.
17. InEGI (2009) Pronuario de informacíon geográfica municipal de los Estados Unidos Mexicanos Tezúltain, Puebla. Clave geosatística 21: 174.
18. Muñoz-Hernández A, Moron MA, Aragon A (2008) Coleoptrera scarabaeoidea de la Región de Tezúltain, Puebla, Mexico. Acta Zoologica Mexicana 24: 57-78.
19. Zarrazaga M (2004) Hospitales integrales con medicina tradicional. Memorias del Cuarto Seminario Nacional y el Segundo Internacional Recursos Fitogenéticos de Plantas medicinales, aromáticas y condimentarias Palmira, Colombia.
20. Süleyman H, Demirezer L, Kuruüzüm A, Banoglu Z, Göcer F, et al. (1999) Antiinflammatory effect of the aqueous extract form Rumex patensia L. roots. Journal of Ethnopharmacology 65: 141-148.
21. Farré M, Xirug J, Saltado A, Peracaula R, Reig R, et al. (1989) Fatal oxalic acid poisoning from sorrel soup. Lancet 2: 1524.
22. Gautam R, Srivastava A, Jachak S (2011) Simultaneous determination of naphtalene and antraphquinone derivatives in Rumex nepalesii Spreng. roots by HPLC: Comparison of different extraction methods and validation. Phytochemical Analysis 22: 153-157.
23. Mekonnen T, Uría K, Enidaword E (2010) Evaluation of the diuretic and analgesic activities of the nizomes fo Rumex abysinicus Jacq in mice. Journal of Ethnopharmacology 127: 433-439.
24. Dersken A, Hensel A, Herrmann F, Schmidt TJ, Ehrhardt C, et al. (2014) 3-O-Galloylated Procyanidins from Rumex acerosa L. Inhibit the Attachment of Influenza A Virus. PLOS ONE 9: 1-13.
25. Gescher K, Hensel A, Hafezi W, Derksen A, Jünn J (2011) Oligomeric oranthocyanidins from Rumex acerosa L. inhibit the attachment of herpex simplex virus type-1. Antiviral Research 89: 9-18.
26. Vasas A, Orbán-Gyapai O, Hoffman J (2015) The Genus Rumex: Review of traditional uses, phytochemistry and pharmacology. Journal of Ethnopharmacology 175: 198-228.
27. Rechinger KH (1990) Rumex subgen. Rumex sect. Axillares (Polygonaceae) in South America. Plant Systematics and Evolution 172: 151-192.
28. Cakilcioglu U, Sengün MT, Türkoglu I (2010) An ethnobotanical survey of the medicinal plants of Yazikonak and Yurtbasi Districits of Elazig Province, Turkey. Journal of Medicinal Plants Research 4: 567-572.
29. Gairola S, Sharma J, Bedi YS (2014) A cross-cultural analysis of Jammu, Kashmir and Ladakh (India) medicinal plant use. Journal of Ethnopharmacology 155: 925-986.
30. Zee OP, Kim DK, Kwon HC, Lee KR (1998) A new epoxynaphthoquinol from Rumex japonicus. Archives of Pharmacal Research 21: 251-258.
31. Altawaz MA (2006) Chemical composition of hummuyd (Rumex vesicarius) grown in Saudi Arabia. Journal of Food Composition and Analysis 19: 552-555.
32. Pardo-de-Santayana M, Tardío J, Morales R (2005) The gathering and consumption of wild edible plants in the Campo (Cantabria, Spain). International Journal of Food Science and Nutrition 56: 529-542.
33. Polat R, Selvi S, Cakilcioglu U, Acar M (2012) Investigation of ethnobotanical aspect of wild sold in Bingöl (Turkey) local markets. Biological Diversity and Conservation 5: 155-161.
34. VanderJagt TJ, Ghattas R, VanderJagt DJ, Crossey M, Glew RH (2002) Comparison of the total antioxidant content of 30 widely used medicinal plants of New Mexico. Life Science 70: 1035-1040.
35. Rivero-Cruz I, Acededo L, Guerrero J, Martínez S, Bye R, et al. (2005) Antimycobacterial agents from selected Mexican medicinal plants. Journal of Pharmacy and Pharmacology 57: 1117-1126.
36. Khan TH, Ganaie MA, Siddiqui NA, Alam A, Ansari MN (2014) Antioxidant potential of Rumex vesicarius L.: in vitro approach. Asian Pac J Trop Biomed 4: 538-544.

37. El-Shahaby O, El-Zayat M, Salih E, El-Sherbiny IM, Reicha FM (2013) Evaluation of Antimicrobial Activity of water infusion plants-mediated Silver Nanoparticles. Nanomedicine & Nanotechnology 4: 1-7.

38. Kerem A, Regev-Shoshani G, Flaishman M, Sivan L (2003) Resveratrol and two monomethylated stilbenes from Israeli Rumex bucephalophorus and their antioxidant potential. Journal of Natural Products 66: 1270-1272.

39. Kerem A, Bilkis I, Flaishman M, Sivan L (2006) Antioxidant activity and inhibition of alpha-glucosidase by trans-resveratrol, piceid and a novel trans-stilbene from the roots of Israeli Rumex bucephalophorus L. Journal of Agricultural and Food Chemistry 54: 1243-1247.

40. Evans WC, Trease GE (1977) Farmacognosy, México. Compañía Editorial Continental SA.

41. Betts T and Fairbairn J (1964) The significance of antracene derivatives to the living plant of Rhamnus purshiana DC. Planta Medica 12: 64-70.

42. Guerra L, Pereira C, Andrade PB, Rodrigues MA, Ferreres F, et al. (2008) Targeted metabolite analysis and antioxidant potential of Rumex induratus. Journal of Agricultural and Food Chemistry 56: 8184-8194.

43. Ciria VO (1995) Fundamentos de Fitotrmica, México. Trillas.