

The Use of Medicinal Plants in the County of Tanquinho, State of Bahia, Northeastern Brazil

Costa-Neto, Eraldo M.^{1,2}, and Oliveira, Maria Vanilda M.^{1,3}

¹Departamento de Ciências Biológicas, Universidade Estadual de Feira de Santana, Km 3, BR 116, Feira de Santana - BA, CEP 44031-460, ²E-mail:heraldont@uefs.br, ³Funcionária do Herbário da UEFS.

RESUMO: The use of medicinal plants in the county of Tanquinho, State of Bahia, northeastern Brazil. O presente estudo procurar registrar o uso medicinal popular de 97 plantas do município de Tanquinho, estado da Bahia, nordeste do Brasil. Os dados foram obtidos de setembro a novembro de 1997, realizando-se entrevistas abertas com praticantes e usuários da medicina tradicional local. As famílias botânicas mais representativas foram Euphorbiaceae, Solanaceae, Lamiaceae, Poaceae, Asteraceae, Anacardiaceae, Verbenaceae e Cucurbitaceae. Remédios baseados em plantas são usados para curar numerosas enfermidades, como gripe, conjuntivite, bronquite, litíase, tuberculose, asma, febre, diarreia, dor de dente, disenteria, tosse e cistite. O valor de recursos medicinais derivados de plantas é bastante significativo. O conhecimento etnobotânico deveria ser incluído em programas de conservação de plantas medicinais para que a população tenha remédios, alimento e insumos.

Palavras-chave: Etnobotânica; Plantas medicinais; medicina herbária; medicina tradicional; Brasil

ABSTRACT: The use of medicinal plants in the county of Tanquinho, State of Bahia, northeastern Brazil. The present study attempts to record the folk medicinal uses of 97 plants of the county of Tanquinho, State of Bahia, Northeastern Brazil. Data were obtained from September to November 1997 by conducting open-ended interviews with practitioners and users of local traditional medicine. The most representative botanic families were Euphorbiaceae, Solanaceae, Lamiaceae, Poaceae, Asteraceae, Anacardiaceae, Verbenaceae, and Cucurbitaceae. Plant-based remedies are used to cure numerous ailments, such as influenza, conjunctivitis, bronchitis, lithiasis, tuberculosis, asthma, fever, diarrhea, toothache, dysentery, cough, and cystitis. The value of medicinal resources derived from plants is very significant. Ethnobotanical knowledge is to be included into programs of medicinal plant conservation in order to provide medicines, food, and income to the people.

Key words: Ethnobotany; medicinal plants; herbal medicine; traditional medicine; Brazil.

INTRODUCTION

Plants have been playing important roles as medicinal agents to human beings since early times (Clement, 1990; Gottlieb & Kaplan, 1995). Medicinal plants that have been used by traditional societies are proving to be important sources of potentially therapeutic drugs (Volks, 1996; Carlson *et al.*, 1997). Quinine, for example, is an antimalarial remedy that has been known to indigenous healers of the tropics for hundreds of years.

Indeed, vascular plants, marine invertebrates, and insects are primary resources of chemical compounds with pharmacological activities (Cox & Balick, 1994). Today, over one hundred and twenty pharmaceutical products currently in use are plant-derived, and some 75 per cent of these were discovered by researching the use of these plants in traditional medicine (Carlson *et al.*, 1997).

Considering tropical landscapes, Brazilian northeastern is mainly characterized by a semi-arid climate with deciduous, woody vegetation dominated by thorny phanerogamous, leafless cacti and bromeliad species comprising what is traditionally called 'caatinga' ('white wood' in the Tupi indigenous language). According to Sampaio (1995), the 'caatinga' is a mosaic of vegetation types, but a mixture of shrubs and trees covers

most of the region, although the former is the dominant vegetation type.

Since few studies have been developed on 'caatinga' botanical resources utilized as medicines (Mota, 1987), the present study aims to describe the use of 98 plant species prescribed as remedies in the county of Tanquinho. This is the first time that such a survey has been performed for this area.

The Study Area

The county of Tanquinho has an area of 93 km². It is located in the State of Bahia, Northeastern Brazil, lying between 11°58' West latitude and 39°06' North longitude (Fig. 1). Tanquinho city is totally included in the 'caatinga' dominion, where the mean annual temperature is 24.6° C and rainfall is about 781 mm (Centro de Estatística e Informações, 1994).

Most of the 7.465 inhabitants of Tanquinho correspond to the typical Brazilian racial profile of composite people of European and African descent, Indians, and various mixtures of these groups, living integrated with the other members of the society of which they are part. Differently from what is seen in other places within the State of Bahia, the illiteracy rate of Tanquinho's people is relatively low, while the average life is high as well as it is the internal migration rate. Young population generally goes to bigger cities,

such as Salvador or Feira de Santana, in order to study or work due to the lack of local opportunity.

Both men and women make their living by planting beans and corn, and by raising cattle. The landowners use to borrow their terres to the non-owners in order to these cultivate fodder. Due to their limited access to official medicines and proper medical care, most of the Tanquinho's elder people hold a traditional knowledge related to the use of indigenous plants as medicines.

MATERIAL AND METHODS

The methods regularly applied in ethnobotanical studies were used (Martin, 1995). The information on medicinal plants was obtained through ethnobotanical surveys by performing open interviews with 10 informants (seven women and three men), who were local herbalists, elderly persons and midwives. Their ages ranged from 24 to 67 years old. Three small villages were visited during 15 days of fieldwork from September to November 1998.

Data were confirmed by one of the authors (M. V. M. Oliveira, 61 years old), who is from Tanquinho community and also a native health practitioner. She has utilized most of the medicinal plant species registered here on a regular basis. The botanic material was collected from September to November 1997. This was complemented with collection made on October 1998. Plant species were identified and voucher specimens deposited at the Herbarium of Feira de Santana State University (HUEFS).

RESULTS

The information is presented here as follows: scientific name, family between brackets, folk name as spoken by the informants, as well as the plants' habit and habitat whenever possible. The modes of uses and preparation are then provided.

Allium sativum L. (Liliaceae), "Alho". This is a cultivated, bulbous herb.

The bulb is crushed and applied externally against insect bites. White rum and garlic is drunk against hoarseness. Rinsing of the mouth with garlic and salt to treat toothache. The infusion of garlic is used to wash the eye with conjunctivitis. The garlic is rubbed on the area stung by wasps. The decoction of the bulb is drunk as an antibiotic.

Aloe barbadensis Mill. (Liliaceae), "Babosa". This is a cultivated, perennial herb that has a rosette shape.

Leaf pulp is used as a suppository to treat hemorrhoid.

Anacardium occidentale L. (Anacardiaceae), "Cajueiro". This tree is both cultivated and wild.

Bark decoction is used as an antiseptic and as a vaginal astringent. It is also used to treat diarrhea.

Ananas sativus Schult. (Bromeliaceae), "Abacaxi". This is a cultivated, rosette shape herb.

Fruit bark infusion is applied topically to treat backache.

Andropogon leucostachyus HBK (Poaceae), "Capim-açu". This wild herb grows in pastures.

Leaf decoction is drunk as a diuretic and to treat spleen problems.

Annona squamosa L. (Annonaceae), "Pinha". This is a cultivated shrub.

Leaves are put on forehead to treat migraine. Leaves tea is drunk to heal flu and hypertension. Seed powder is mixed with coconut oil and rubbed on psoriasis.

Annona muricata L. (Annonaceae), "Graviola". This is a cultivated tree.

Leaves decoction is drunk against renal diseases.

Argemone mexicana L. (Papaveraceae), "Cardosanto". This annual herb grows next to the houses or in the field.

Seeds or root decoction is drunk to treat asthma, flu, and fever.

Aristolochia sp. (Aristolochiaceae), "Jarrinha". This wild, perennial plant grows as a climbing herb.

The decoction of aerial parts is drunk against erysipelas.

Artemisia sp. (Asteraceae), "Artemísia". This annual herb is both cultivated and wild.

Leaf decoction is drunk to regulate the menstruation flux.

Bidens pilosa L. (Asteraceae), "Carrapicho-de-ovelha". This wild, annual shrub is considered a weed.

Leaves decoction is applied topically to treat backache.

Bixa orellana L. (Bixaceae), "Urucum". This is a native tree in Brazil, but it is a cultivated species in Tanquinho area.

Pericarp decoction is drunk to treat hypertension.

Boerhavia hirsuta Willd. (Nyctaginaceae), "Pegapinto". This is a creeping herb.

Root decoction is drunk to treat enuresis.

Brunfelsia hoepfiana Benth (Solanaceae), "Manacá". This is a cultivated shrub.

Root syrup is taken against gonorrhea.

Bryophyllum pinnatum Kurtz (Crassulaceae), "Folha-da-costa". This is a perennial, cultivated herb.

Leaves syrup is taken as an antitussive. Leaves are applied externally on furunculosis.

Bumelia sartorum Mart. (Sapotaceae), "Quixabeira". This is a native tree.

Bark tea is drunk to relieve duodenal ulcer.

Caesalpinia pyramidalis Tul. (Caesalpiniaceae), "Catingueira". This is a native tree.

Leaves, flowers and bark decoction is drunk against gastritis and heartburn.

Carica papaya L. (Caricaceae), "Mamoeiro". This is a cultivated tree.

Male flower decoction is drunk to treat indigestion.

Cassia occidentalis L. (Caesalpiniaceae), "Fedegoso". This is a wild, annual herb.

Root decoction is drunk to treat fever, flu and hoarseness.

Cereus hildemannianus Kint (Cactaceae), "Mandacaru-de-três-quinas". This is a climbing shrub that is cultivated in the area.

Cladodium infusion is drunk to treat lithiasis in general.

Chamaesyce sp. (Euphorbiaceae), "Maria-preta". This is a creeping, wild herb.

The whole plant in decoction is drunk to treat diarrhea.

Chenopodium ambrosioides L. (Chenopodiaceae), "Mastruz". This wild shrub grows next to the houses.

Juice is taken with milk after breakfast against bronchitis. Leaves are cooked and the liquid is drunk to heal flu, bronchitis and tuberculosis. Juice with ricinus oil is drunk against verminosis.

Citrus limonum Risso (Rutaceae), "Limão". This is a cultivated tree.

Juice is used to wash eyes with conjunctivitis.

Cominum cyminum L. (Apiaceae), "Cominho". This is a cultivated, annual herb.

Fruits are eaten before dog-bites to prevent hydrophobia.

Commelina nudiflora L. (Commelinaceae), "Marianinha". This is a perennial and wild

herb that is considered a weed.

The water found inside the bracts is instilled in the eyes to treat ophthalmic diseases.

Croton campestris Mart. et Muell. et Arg. (Euphorbiaceae), "Velame". This is a wild shrub that is considered a weed.

The decoction of leaves is drunk to treat nasal congestion, intestinal problems and influenza.

Cucurbita lagenaria L. (Cucurbitaceae), "Cabaceira". This is a creeping and climbing herb that is cultivated.

Leaf is applied externally to treat chilblains.

Cucurbita pepo L. (Cucurbitaceae) "Abóbora". This is a creeping and climbing herb that is cultivated.

Seed decoction is drunk as a vermifuge.

Cymbopogon densiflorus (Steud.) Stapf in Prain (Poaceae), "Capim-caboclo". This is a wild herb.

Leaf decoction is drunk as a diuretic.

Datura stramonium L. (Solanaceae), "Zabumba". This annual, wild shrub grows in degraded areas.

Flowers are smoked in the pipe against asthma.

Dioclea violacea M. et Benth (Caesalpiniaceae), "Mucumã". This is a wild climbing tree.

Seeds decoction is drunk to treat sequels of stroke.

Erythrina mulungu Mart. (Papilionaceae), "Mulungu". This is a native tree.

Leaves and bark decoction is drunk against insomnia and anxiety.

Euphorbia prostrata Ait. (Euphorbiaceae), "Sanguinho". This is a creeping, wild herb.

Latex is applied externally on hard warts.

Euphorbia phosphorea Mart. (Euphorbiaceae), "Avelós". This shrub is both wild and cultivated.

Latex is applied on warts.

Foeniculum foeniculum Karst (Apiaceae), "Erva-doce". This is a perennial, cultivated herb.

Leaves decoction is drunk against flatulence. Fruits decoction is drunk to treat child's colic.

Gossypium barbadense L. (Malvaceae), "Algodão-graúdo". This is a cultivated shrub.

Leaf decoction is drunk to treat jaundice and as a diuretic.

Habrantus sp. (Amaryllidaceae), "Cebola-branca". This is a bulbous, wild herb.

Bulb syrup is recommended to treat whooping cough.

Heliotropium foetidum D. C. et Salzn (Boraginaceae), "Crista-de-galo". This is a perennial, wild herb.

The whole plant decoction is mixed with salt and applied externally on feet eczema.

Imperata contracta Hitch (Poaceae), "Sapé". This is a perennial, wild herb.

Rhizome decoction is drunk as a diuretic.

Jatropha sp. (Euphorbiaceae), "Pinhão". This perennial shrub is both wild and cultivated.

Sap is used externally as an antihemorrhagic.

Lactuca sativa L. (Asteraceae), "Alface". This is an annual, cultivated herb.

Leaf decoction is drunk as a sedative in cases of insomnia.

Lantana lilacina Desf. (Verbenaceae), "Camará". This is a wild shrub.

A bath with the aerial parts is taken against flu and fever.

Lantana camara L. (Verbenaceae), "Chumbinho". This is a wild shrub.

The syrup of aerial parts is taken against cough.

Leonotis nepetaefolia (L.) R. Br. (Lamiaceae), "Cordão-de-são-francisco". This is an annual, wild shrub.

Leaves decoction is drunk during eight days before menstruation to alleviate menstrual colic. Fruit decoction is regularly taken as an aphrodisiac.

Lippia cf. *pohliana* (Verbenaceae), "Alecrim-de-boi". This is a perennial, wild shrub.

Leaves decoction is taken to treat influenza.

Lippia alba (Mill.) N. E. Br. (Verbenaceae), "Erva-cidreira". This is a perennial, cultivated shrub.

Leaves and bark decoction is used as a sedative.

Loasa palmata Spreng (Loasaceae), "Urtiga-de-lagedo". This is a perennial, wild herb that is rupestral.

A bath with the leaves is taken to treat shrinkage of mammary glands and testicles.

Luffa operculata Cogn. (Cucurbitaceae), "Buchinha". This is a climbing herb.

Fruit tea is used against sinusitis.

Lycopersicon esculentum Miller (Solanaceae), "Tomate-selvagem". This is an annual, wild shrub.

Fruit is applied externally to disinfect flayed water corns, which are coetaneous vesicles formed by compression.

Malpighia coccifera L. (Malpighiaceae), "Acerola". This is a perennial, cultivated shrub.

Leaf decoction is regularly drunk to treat influenza.

Manihot esculenta Crantz. (Euphorbiaceae), "Mandioca". This domesticated, native small tree is also cultivated.

Latex is applied on warts. A bath with the green leaves is taken to treat "fogo selvagem" (?). Root decoction is drunk against diarrhea.

Mentha villosa L. det. Harley (Lamiaceae), "Hortelã-miúdo". This is a perennial, cultivated herb.

Leaf decoction is drunk to treat bronchitis.

Mimosa arenosa (Wild.) Poir. (Leguminosae), "Jurema". This is an aculeate, wild tree.

Bark decoction is drunk against asthma.

Mirabilis jalapa L. (Nyctaginaceae), "Bonina". This is a perennial herb.

Powder of the seeds is used as a cosmetic in acne.

Momordica charantia L. (Cucurbitaceae), "Melão-de-são-caetano". This is a climbing, annual shrub.

A bath using the branches as a sponge is taken to treat scabies. The juice of the branches orally taken is considered an abortive. The whole plant in decoction is also considered an abortive.

Musa sapientum L. (Musaceae), "Bananeira". This is a cultivated plant.

Sap is used externally as antihemorrhagic and anti-inflammatory. Pseudostem decoction is taken orally against diarrhea.

Myrciaria jaboticaba Berg. (Myrtaceae), "Jaboticabeira". This is a native tree.

Bark and leaves decoction or infusion is drunk to treat dysentery and diarrhea.

Nasturtium officinale R. Br. (Brassicaceae), "Agrião". This is a perennial, semi-aquatic herb that is also cultivated.

Leaf and bark decoction is orally taken against hepatic problems.

Ocimum fluminensis (Lamiaceae), "Alfavaca". This is an annual, wild shrub.

Seed is put on the eye to rid it of speck. A bath with the leaves is taken to relieve bronchitis and flu.

Olea europaea L. (Oleaceae), "Oliva". This is a cultivated tree.

Olive oil is rubbed on burns.

Operculina macrocarpa L. (Convolvulaceae), "Batata-de-purga". This is a wild, climbing shrub.

Root infusion, dried and powdered, is drunk against flatulence. Resin is mixed to water and taken as a blood purifier. The sweet made from the roots is eaten to treat acne and furuncles.

Oryza sativa L. (Poaceae), "Arroz". This is a cultivated herb.

Grains are cooked until they are melted. Then they are to be eaten to treat intestinal infections.

Persea americana Mill. et Mart. (Lauraceae), "Abacateiro". This is cultivated tree.

Leaf decoction is drunk against renal problems.

Phalaris canariensis L. (Poaceae), "Alpiste". This is a cultivated herb.

Seed tea is drunk as a diuretic and also to treat lithiasis in general.

Phyllanthus niruri L. (Euphorbiaceae), "Quebra-pedra". This is a perennial, wild shrub that grows next to human settlements.

Root decoction is drunk against lithiasis in general.

Piper nigrum L. (Piperaceae), "Pimenta-do-reino". This is a cultivated, perennial climbing tree.

Grains are put within teeth cavities to relieve toothache. The infusion of the grains is recommended to increase uterine contraction rhythm during childbirth.

Piptadenia rigida Benth (Leguminosae), "Angico". This is a wild tree.

Bark decoction is mixed with milk and drunk to treat asthma and bronchitis.

Piptadenia macrocarpa Benth (Leguminosae), "Angico". This is a wild tree.

Bark decoction is drunk against anemia.

Pistia stratiotes L. (Araceae), "Golfo". This is a sub-spontaneous, aquatic herb that has a rosette shape.

The whole plant in decoction is drunk as a diuretic.

Plectranthus amboinicus (Lour.) Spr. det. Harley (Lamiaceae), "Hortelã-graúdo". This is a perennial, cultivated herb.

A bath with the decoction of aerial parts is taken to treat cystitis. Leaf decoction is drunk to treat bronchitis and hepatic problems.

Pluchea quitoco D. C. (Asteraceae), "Quitoco". This is a perennial, cultivate shrub.

Leaf decoction is drunk to treat amenorrhea.

Plumbago scandens L. (Plumbaginaceae), "Folha-de-louco". This is a wild shrub that grows on fences.

Leaf, root and/or bark are applied on decayed teeth to relieve toothaches.

Portulaca oleracea L. (Portulacaceae), "Beldroega-branca". This is an annual, wild herb that is considered a weed

Leaves are eaten for constipation. The infusion of aerial parts is drunk as a diuretic.

Psidium guajava L. (Myrtaceae), "Goiabeira". This is a cultivated tree.

The decoction of the bud is drunk against dysentery.

Punica granatum L. (Punicaceae), "Romã". This is a cultivated shrub.

The pericarp is chewed against hoarseness and amigdalitis. The water that is found inside the seeds (aril) is instilled on eyes against cataract and "pterijo" (?).

Ricinus communis L. (Euphorbiaceae), "Mamona". This is a wild shrub that grows next to the houses.

Seed oil is used as a drastic and against baldness.

Rosmarinus officinalis L. (Lamiaceae), "Alecrim". This is a cultivated sub-shrub.

Leaf decoction is drunk as sedative and antispasmodic. A bath with the leaves is taken to treat influenza.

Schinopsis brasiliensis Engl. (Anacardiaceae), "Baraúna". This is a wild tree.

Bark and manioc flour are put together to make a plaster which is used to immobilize fractures.

Schinus terebinthifolius Raddi (Anacardiaceae), "Aroeira". This is a wild tree.

Bark infusion is drunk to treat infected wounds as well as inflammations of internal organs.

Scoparia dulcis L. (Scrophulariaceae), "Vassourinha-de-nossa-senhora". This is a wild sub-shrub.

The juice of the aerial parts is mixed with milk and drunk against bronchitis and flu.

Sedum rhodiola D. C. (Crassulaceae), "Brilhantina". This is a perennial, cultivated herb. Leaf tea is drunk to treat diarrhea.

Solanum agrarium Sendt. (Solanaceae), "Melancia-da-praia". This is an annual, wild sub-shrub.

Juice of all plant is mixed with honeybee and drunk for pleurisy.

Solanum nigrum L. (Solanaceae), "Pimenta-de-passarinho". This is a wild, annual herb.

The juice of ripe fruits is rubbed on places suffering from "fogo selvagem" (wild fire).

Solanum paniculatum L. (Solanaceae), "Jurubeba". This is an aculeate, wild sub-shrub.

Mature fruits are eaten against tuberculosis. Root decoction is drunk to treat gastritis.

Spondias lutea L. (Anacardiaceae), "Cajazeira". This is a wild tree that grows in the ciliary woods.

Leaf decoction is used to wash the eye with conjunctivitis.

Spondias tuberosa Arr. (Anacardiaceae), "Umbuzeiro". This is a wild tree that grows in the "caatinga".

Leaf decoction is used to wash the eye with conjunctivitis. Resin is mixed with water and drunk to treat venereal infections. A Root scraping in warm water is drunk in cases of diarrhea.

Syagrus coronata (Mart.) Becc. (Arecaceae), "Licurizeiro". This is a native tree that grows in the "caatinga".

Inflorescence infusion is drunk to treat dysentery. The water found inside the immature fruits is used as eye-drops to treat cataract.

Syzygium aromaticum L. (Myrtaceae), "Cravo-da-india". This is a cultivated tree.

Leaves and buds are used as local analgesic to relieve toothaches. The decoction of shoots and leaves is drunk to relieve cough. Chew pieces of the bark against sore throats.

Tecoma violacea Hub. (Bignoniaceae), "Pau-d'arco". This is a wild tree that grows in the ciliary woods.

Bark infusion is drunk to treat cancer.

Terminalia sp. (Combretaceae), "Amendoeira".

This is a cultivate tree.

Leaf decoction is applied topically to treat backache.

Tillandsia usneoides L. (Bromeliaceae), "Sambambaia". This is a wild, epiphytic plant.

The whole plant in decoction is drunk in cases of sexual weakness.

Turnera sp. (Turneraceae), "Carobinha". This is a perennial, wild herb that is considered a weed.

A bath with the decoction of aerial parts is taken to treat scabies.

Vanilla palmarum Lindl. (Orchidaceae), "Banana-de-licurizeiro". This is a wild, epiphytic plant.

Leaf juice is rubbed on tetter.

Vernonia sp. (Asteraceae), "Assa-peixe". This is a wild, perennial sub-shrub.

Leaf decoction is drunk to treat cystitis.

Vernonia condensata Baker (Asteraceae), "Alumã". This is a cultivated shrub.

Leaves decoction is drunk to treat stomachaches.

Zea mays L. (Poaceae), "milho". This is a cultivated, annual herb.

Stigma decoction is drunk against enuresis. Seed decoction is drunk to treat measles.

Zizyphus joazeiro Witt. (Rhamnaceae), "Juazeiro". This is a wild tree that grows in the "caatinga".

Leaves are rubbed on teeth to clean them. The decoction of bark is used as hair wash to treat dandruff.

DISCUSSION

At least 97 plants belonging to 87 genera of 49 families of Angiosperm were reported as having phytotherapeutic properties. The most representative family was Euphorbiaceae (8), followed by Solanaceae (7), Poaceae and Asteraceae (6), Anacardiaceae and Lamiaceae (5), Verbenaceae, and Cucurbitaceae (4). Many of the utilized taxa are cultivated species and in most cases the recorded plants are administered in infusions. Some species are cosmopolite and have the same medicinal uses in different places, such as *Foeniculum foeniculum*, which is also recommended against flatulence in Chinese folk medicine, and *Momordica charantia*, which has been used to treat dermatological diseases in China (Botsaris, 1995).

Plant parts that serve for preparing remedies are: bulbs (2), barks (16), leaves (41), seeds and grains (12), roots (10), aerial parts (7), pericarps (2), juice (2), flowers (3), fruits (10), branches (1), latex (3), rhizome (1), sap (2), stigma (1), inflorescence (1), shoots (1), oil (1), resin (2), bracts (1), pseudostem (1), cladodium (1), and bud (2). The whole plant (6) is also used. The ailments commonly treated by plant medicines are influenza, conjunctivitis, bronchitis, lithiasis, tuberculosis, asthma, fever, diarrhea, toothache, dysentery, cough, and cystitis. Herbal remedy preparations are used as antitussive, antiseptic, diuretic, anti-inflammatory, sedative, abortive, antihemorrhagic, antispasmodic, and blood purifier. According to the interviewees, folk medicines have no side effects. Many phytotherapeutic applications in this area coincide with those of other parts of the country (Elisabetsky & Nunes, 1990; Ribeiro, 1993; Figueiredo *et al.*, 1993; Begossi *et al.*, 1993).

According to popular prescriptions, decoctions are generally prepared by pouring 200 ml of boiling water over 10g of dried plant parts. After four hours, one or two teacups are drunk by day. On the contrary, infusions are prepared by putting 100g of plant parts into 1,000 ml of water. When they are ready people put them in the refrigerator and they drunk these infusions instead of fresh water. When a plant infusion or decoction is mixed with milk it is to be drunk only once and during the morning. Syrup is taken in a tablespoon three times a day.

Many of the plants currently recorded have been already screened for bioactive compounds, such as *Carica papaya* (Akah *et al.*, 1997), *Cucurbita pepo* (Bombardelli & Morazzoni, 1997), *Bryophyllum pinnatum* (Olajide *et al.*, 1998), *Catharanthus roseus* (Carlson *et al.*, 1997), and *Annona muricata* (Khan *et al.*, 1998). As an example of a plant-derived compound we can cite the chymopapain, a chemical that is extracted from *Carica papaya*. It has been clinically useful as proteolytic and mucolytic agents (Carlson *et al.*, 1997). *Catharanthus roseus* has also proved to be efficacious to medical science by providing two pharmaceutical compounds: vinblastine and vincristine, which are both useful as antitumor and antileukemic agents (Carlson *et al.*, 1997).

The value of medicinal resources derived from plants is very significant. They are usually the only available resources for the majority of the Tanquinho people, who have limited access to official medicines and proper medical care. Thus, pharmacological studies are requested in order to get information on the bioactivity of the plants as well as on the reliability of the medicinal properties attributed by folk tradition. We suggest the inclusion and promotion of ethnobotanical knowledge in programs of medicinal plant conservation in order to provide people of

permanent and reliable sources of medicine, food, income, and other benefits.

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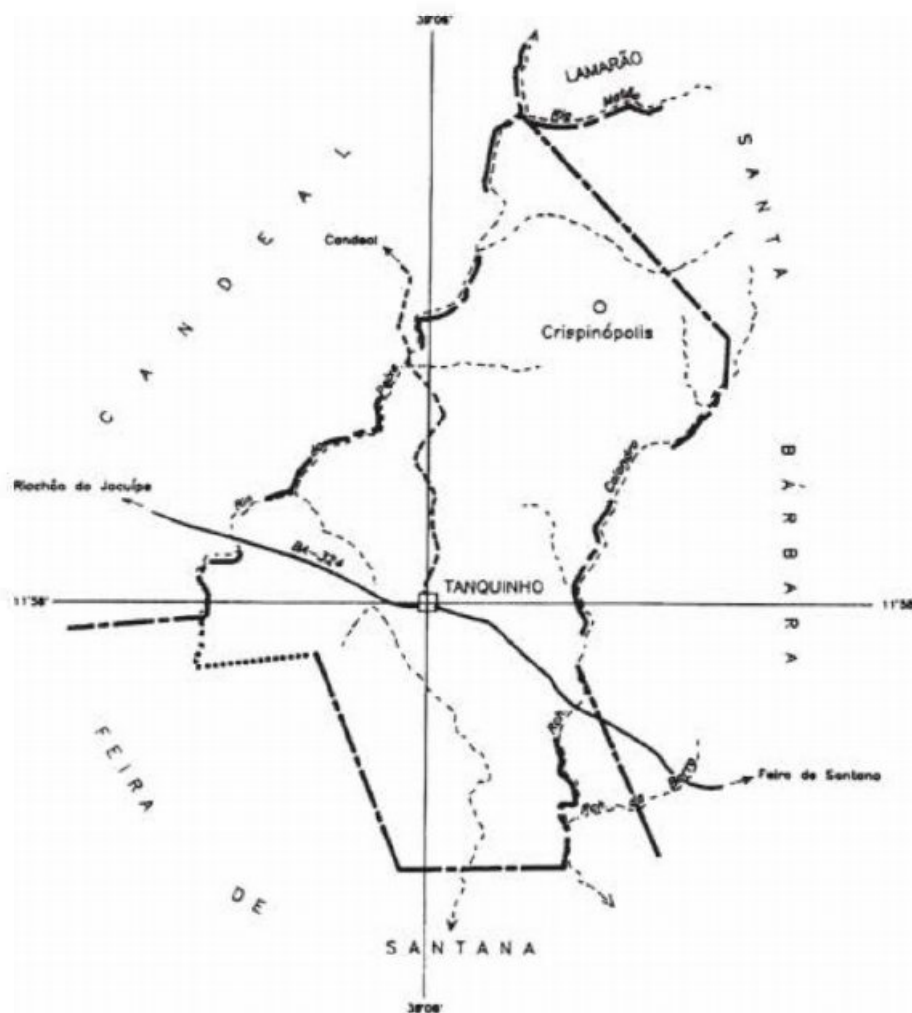


Fig. 1. Localization of the County of Tanquinho.