

## Medicinal plants indicated for flu and colds in the South of Brazil

### Plantas medicinais indicadas para gripes e resfriados no sul do Brasil

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#### ABSTRACT

We sought to know the medicinal plants used for flu and colds by farmers from the South of Rio Grande do Sul State and to compare it with scientific evidence. This descriptive study was conducted with 12 farmers living at Ilha dos Marinheiros, in the city of Rio Grande, Rio Grande do Sul, Brazil. We used descriptive analysis, comparing the results with the scientific literature. Thirteen plants were cited as used for cold and flu: *Achyrocline satureioides*, *Allium sativum*, *Cinnamomum zeylanicum*, *Citrus limon*, *Citrus reticulata*, *Citrus sinensis*, *Gochnatia polymorpha*, *Illicium verum*, *Mentha piperita*, *Mikania* sp., *Ocimum selloi*, *Origanum majorana* and *Verbena* sp. Results show popular knowledge meeting scientific evidence for most indications, seen that 84,6% of cited plants are in agreement with the literature. Thus, we emphasize the richness of popular knowledge, the need of its appreciation and constant approximation of health professionals to this knowledge, integrated with science.

**Descriptors:** Plants, Medicinal; Respiratory System; Nursing Care.

#### RESUMO

Buscou-se conhecer as plantas medicinais utilizadas para gripes e resfriados por agricultores da região Sul do Rio Grande do Sul e compará-las com evidências científicas. Estudo descritivo realizado com 12 moradores agricultores da Ilha dos Marinheiros, no município de Rio Grande, Rio Grande do Sul, Brasil. Utilizou-se a análise descritiva, comparando os resultados com a literatura científica. Foram citadas 13 plantas utilizadas para gripes e resfriados: *Achyrocline satureioides*, *Allium sativum*, *Cinnamomum zeylanicum*, *Citrus limon*, *Citrus reticulata*, *Citrus sinensis*, *Gochnatia polymorpha*, *Illicium verum*, *Mentha piperita*, *Mikania* sp., *Ocimum selloi*, *Origanum majorana* e *Verbena* sp. Os resultados mostraram que o conhecimento popular vai ao encontro das evidências científicas para a maioria das indicações, visto que 84,6% das plantas citadas estão condizentes com a literatura. Desta maneira, enfatiza-se a riqueza do saber popular, a necessidade de sua valorização e constante aproximação dos profissionais de saúde a este saber, integrado ao científico.

**Descritores:** Plantas Medicinais; Sistema Respiratório; Cuidados de Enfermagem.

## INTRODUCTION

Health is guaranteed to populations in diverse ways in the world, in an international perspective, health systems are generally dominated by fragmented models. In this sense, a contemporaneous crisis in health systems has been happening in all countries around the world<sup>(1)</sup>.

Health have not been considered a social right in Brazil for a long time and Brazilians were divided into three categories regarding access to health services: the ones who paid for private services, the ones who had the right to public assistance through social security and, the ones with no rights. This last category, not satisfied with the situation, boosted popular manifests that culminated the creation of a system which would offer egalitarian attention, care and promote health to the whole population<sup>(2)</sup>.

In 1988, the Brazilian Federal Constitution considered a major part of claims to improve health assistance, and created the Brazilian Unified Health System (SUS). Since that, health became a social right in Brazil, universal access became possible, establishing a new health concept<sup>(2)</sup>. These discussions resulted in the creation of programs and politics aimed to reach universality, integrity and equity principles from SUS. In this perspective, the Immunization National Program (PNI), a recognized strategy by the World Health Organization (WHO), presents important results, as the vaccine coverage of the influenza campaign in 2013 being 87,293%<sup>(2-3)</sup>.

Influenza is a viral infection affecting the respiratory system, with elevated transmission and tendency to easily disseminate seasonal epidemics, which complications can occur and evolve to pneumonia. It is commonly confused with a cold, due to its very similar symptoms, however, the cold is less intense<sup>(3)</sup>.

The vaccination against influenza is offered through SUS for targets defined by the Health Ministry: elderly over 60 years, children older than six months and with less than two years, health workers from units of

influenza attention, indigenous populations, pregnant women and prison population<sup>(3)</sup>.

With that, part of the population stays unprotected, and could be affected by these diseases, therefore directing many of those people to adhere alternative treatments for symptoms relief, as the use of medicinal plants. Those are of easy access and are low cost, which implies to health professionals, especially nurses, close contact to the population, orienting them regarding flu and cold prevention, learning and broadening therapeutic options for the user and within those, medicinal plants and phytotherapies<sup>(4)</sup>.

Therefore, aiming to broaden professional action based in an attention model contextualized with the reality of the population, humanized and centered in human integrity, in 2006 the Brazilian National Policy of Integrated and Complementary Practices (PNPIC) was created, which incentivizes the use of therapies as phytotherapy, acupuncture, iridology, massage therapy, within other practices. These have a systemic focus in relation to the individual, in which attention is turned to one's lifestyle, their social relationships, that facilitates to build a link between professional and user, and directs to integrality in assistance<sup>(5)</sup>.

In this perspective, this study had as relevance the possibility to strengthen the evidence about the use of complementary therapeutic resources, medicinal plants, to treat colds and flu. Facing this situation, the nurse and other health professionals can assist individuals and families in a contextualized way with the culture in which they are inserted, giving value to their caring beliefs and practices, in order to guarantee an integral assistance. We understand integral assistance as the one which perceives the person as a whole, without fragmenting and including the context in which the person is inserted, recognizing their knowledge, planning the care with them and constantly approximating common to scientific knowledge.

Besides, we highlight that the literature<sup>(6)</sup> provides information which nowadays, common knowledge about

medicinal plants is being lost with the passing of generations. Thus, this study contributes in a way to rescue this knowledge and influence health professionals to incentivize its use. Therefore, we present as objective: to know the medicine plants used for flu and colds by dwellers of Ilha dos Marinheiros – South region of Rio Grande do Sul, and compare them to scientific evidence.

## METHODS

This is a descriptive research, in which we used partial data from the data set of the research Bioactive plants for human use by farmers' families, of ecologic base in the south region of RS. It was developed by the Nursing School of Universidade Federal de Pelotas and by Embrapa Clima Temperado, financed by the Brazilian National Council of Scientific and Technological Development (CNPq).

Twelve farmer dwellers from Ilha dos Marinheiros participated in the study, meeting the following inclusion criteria: to live at Ilha dos Marinheiros; to have at least 18 years of age and to have knowledge regarding medicinal plants. Data collection occurred during February to July of 2010 and, it was initiated from the indication of Community Health Workers (CHW) linked to the Family Health Strategy from the Island, with participants full name and telephone of participants available. Using the snowball sampling<sup>(7)</sup> technique, we selected participants, and used semi-structured interview and simple observation as instruments, with the medicine plants photograph registry. Those, when were collected and photographed, were identified by a botanist, from the Embrapa Clima Temperado.

The target questions were: gender, age, religion and education (participants' profile), indication, followed by information about how they acquired the knowledge related to the theme.

Data obtained on this research were descriptively<sup>(8)</sup> analyzed, confronting results found against the scientific literature. Thus, the cited medicine plants were confronted with clinical and pharmacologic studies,

available at LILACS (Latin-American Literature in Health Sciences), SciELO (Scientific Electronic Library Online), PubMed (Public Medline), ScienceDirect – Elsevier and few other technical books of pharmacognosy and ethnobotany, to satisfy the proposed objective. Searches were performed from February to June of 2012 and repeated in April of 2015, with the scientific name of each medicine plant found.

Ethical aspects foreseen in the Resolution COFEN 311/2007, of the Nursing Professionals Ethical Code and in the Resolution 466/12 of the Health National Council of the Health Ministry were secured and, all participants of this study signed the Free and Informed Consent. The project received approval from the Ethics in Research Committee of the Medical School of Universidade Federal de Pelotas (072/2007).

## RESULTS

From the 12 participants, 10 were women between ages 56 and 90 years. Religion was predominantly catholic, and regarding education, nine did not complete middle school and three are illiterate.

The ethnobotanical survey found the use of 194 plants by interviewed participants, from those, 16 were referred as efficacious for the treatment of flu and colds and, three were not taxonomically identified, and for this reason, those were not included in the study.

The Chart 1 describes the medicine plants cited in the study for flu and colds specifying the popular name, and the taxonomic identification, as well as their respective photographic images.

**Chart 1:** Medicine plants with indicated used for the treatment of flu and colds in participants. Pelotas, RS, Brazil, 2010.

Scientific name	Family	Popular name	Photographic Record
<i>Achyrocline satureioides</i>	Asteraceae	marcela	
<i>Allium sativum</i>	Liliaceae	garlic	
<i>Cinnamomum zeylanicum</i>	Lauraceae	cinammon	
<i>Citrus limon</i>	Rutaceae	lemon tree	
<i>Citrus reticulata</i>	Rutaceae	mandarin tree	
<i>Citrus sinensis</i>	Rutaceae	orange tree	
<i>Gochnatia polymorpha</i>	Asteraceae	cambará	
<i>Illicium verum</i>	Schisandraceae	star anise	
<i>Mentha piperita</i>	Lamiaceae	peppermint	
<i>Mikania sp.</i>	Asteraceae	guaco	

Scientific name	Family	Popular name	Photographic Record
<i>Ocimum selloi</i>	Lamiaceae	Green pepper basil	
<i>Origanum majorana</i>	Lamiaceae	marjoram	
<i>Verbena</i> sp.	Verbenaceae	verbena	

Source: Bioactive Plants Project of human use by farmer's families of ecological basis in the South region of RS, 2010.

## DISCUSSION

Flu can be confused with colds in many occasions, making its difference important. The flu is a viral infection of the respiratory tract caused by the influenza virus, and it is manifested by high fever, chills, sore throat, headache, runny nose, weakness, muscle pain and, sometimes, diarrhea. Yet, the cold is a mild infection of the upper airways, caused by the rhinovirus (RV), and characterized by runny nose and nasal congestion, sneezes or coughs, watery eyes and normally low fever<sup>(9)</sup>.

Facing all diverse symptoms, the population affected by flu and colds has searched for alternative treatments that alleviate these, with the insertion of medicine plants.

For the plant *Ocimum selloi*, a study was found in which the essential oil was tested in rats and demonstrated their analgesic activity<sup>(10)</sup>. A similar research found analgesic action of *Cinnamomum zeylanicum*, being its effect larger than aspirin® and smaller than morphine<sup>(11)</sup>. Those manifestations, when directed to flu and cold treatments, act alleviating the symptoms, as their analgesic activity can be useful for headache, sore throat and myalgia. These two plants were indicated by participants for flu symptoms alleviation.

In relation to *Mikania* sp., also indicated by participants for alleviating flu symptoms, diverse scientific studies were found regarding their different

species, within them some are specific for respiratory problems (*M. micranta* e *M. lindleyana*). The *M. micranta* presents activity against the acting virus in the respiratory system<sup>(12)</sup>, and *M. micranta*<sup>(13)</sup> and *M. lindleyana* presented anti-inflammatory activity<sup>(14)</sup>.

Some plants (*Citrus reticulata*, *Verbena officinalis*, *Achyrocline satureioides*, *Mentha piperita*, *Allium sativum*, *Gochnatia polymorpha*) had anti-inflammatory activity evident, and can be effective for flu symptoms, as alleviation of fever, headache, myalgia, sore throat and cough. Those plants were indicated to alleviate flu symptoms, except the *Gochnatia polymorpha* that was specifically indicated to alleviate cough caused by flu. The crust of *Citrus reticulata* had their anti-inflammatory activity significantly elevated after thermic treatment at 100°C, where nobiletin and tangeretin are released, responsible for this effect<sup>(15)</sup>. A species of *Verbena*, the *V. officinalis*, administered orally by different extract types from air parts of the plant in rats, presented anti-inflammatory activity for all extracts<sup>(16)</sup>.

Pharmacological research showed the anti-inflammatory effect present in the quercetin found in the *Achyrocline satureioides*<sup>(17)</sup>, in the *Mentha piperita*<sup>(18)</sup> essential oil, in the *Allium sativum*<sup>(19)</sup> syrup and in the *Gochnatia polymorpha*<sup>(20)</sup> extract.

The anti-inflammatory potential can be efficacious for many respiratory problems beyond flu and colds,

especially those involving symptoms as fever, cough, and pains related to inflammatory processes.

The *Illicium verum* commonly known as star anise, was cited by participants especially for influenza A (H1N1) and had its evidence found in a scientific study showing the chemical acid present in the *I. verum* being an intermediate key in phosphate production of oseltamivir, commercially called Tamiflu®, an anti-viral with indication for flu treatment<sup>(21)</sup>.

In 2009, this new virus (H1N1) was announced in California (USA) and had its pandemic declared by the WHO in June of 2009<sup>(22)</sup>. It was possible to perceive that although it was a recent disease, common knowledge it is also constantly updates, in accordance with new necessities, and the population acquires in the market plants that does not develop in a temperate weather, where data were collected.

For *Citrus sinensis*, indicated by participants to treat cold and flu, we found evidence of its edematogenic potential, which can be used for flu and colds symptoms, for example, nasal mucus edema, which causes nasal obstruction<sup>(23)</sup>.

We did not find evidence related to the plants *Citrus limon* and *Origanum majorana* related to the common indication for alleviation of flu symptoms.

From the 13 cited plants, five were found in the Resolution n° 10 from 2010 of the

National Agency of Sanitary Vigilance (ANVISA)<sup>(24)</sup>. This resolution, published in 09 of March of 2010, brings a list of 66 vegetal drugs with allegations, contraindications, mode of use, within other information of extreme relevance, as it provides information to professionals and the population.

The plants available in the RDC n°10 from 2010 from ANVISA are: *Achyrocline satureioides*, *Allium sativum*, *Illicium verum*, *Mentha piperita* and *Mikania glomerata*. The *Achyrocline satureioides* has anti-inflammatory allegation, *Allium sativum* has expectorant and antiseptic, *Illicium verum* has expectorant and useful for bronchitis, *Mikania glomerata* for flu and colds, allergic and

infectious bronchitis as an expectorant, and for *Mentha piperita* the allegations are not related to the respiratory system<sup>(24)</sup>.

In this study, some plants could not be identified regarding its species, (*Verbena* sp. and *Mikania* sp.) and because of that, searches in the scientific literature was conducted with the plant gender. This can be considered a study limitation, as it was not possible to know if the plants used by participants were the same found in scientific studies.

Clinical and pharmacological studies found brought evidence for at least one symptom referred to flu and colds, therefore, 84,6% of plants were considered efficacious, as they were in agreement with the scientific literature. This reveals the richness of common knowledge, revalidating the need for respect and the rescue of knowledge that were acquired between family members and, they represent a patrimony with origins from Azorean ancestry, whose culture has been transmitted from generation to generation.

In the field of complementary care, results from this study represent an alert to health professionals, who need to observe routine praxis of people and value common knowledge about medicinal plants, relating it with scientific fundamentals and integrating it in their routine work.

## FINAL CONSIDERATIONS

Respiratory diseases including flu and colds are within the main public health problems, affecting people's quality of life. Thus, it is essential to deepen studies about therapeutic options used by populations, with the purpose of legitimize and make them applicable in professional practice.

Existing policies at SUS, for example the National Policy of Integrative and Complimentary Practices (PNPIC) so they become effectively put in practice should support professional actions in qualified health attention. From there, they will be able to contribute in prevention of

diseases, health maintenance, recovery and promotion, based in humanizing principles and assistance integrality.

Results from this study show that people use medicinal plants for respiratory system care, especially for flu and colds. Also shows that common knowledge meets scientific studies for most indications. As participants indicated a plant for symptoms of these diseases, we considered the evidence of at least one symptom and, with that, we concluded that 84,6% of mentioned plants are in agreement with the literature.

Approximation of scientific and common knowledge about the use of medicinal plants, and the incentive to cultivate these as support in the treatment of health problems should be a valuable practice. Especially by allowing the rescue of ancestry knowledge and guaranteeing that it is being passed on within the family.

The fact that some plants mentioned by participants as related to flu and cold effects not being found in the

literature, can be considered a limitation of the present study, as well as the botanical identification of few cited plants, impeding the search for scientific evidence to confirm or not their beneficial effects. Besides, majority of clinical studies are performed with animals, noting the need to broadening the application of research in humans.

Therefore, the need to explore scientific and common knowledge about medicine plants is evident, specifically for flu and colds. Thus, contributing to the prevention of these diseases and with the discovery of new analgesic, anti-inflammatory, and anti-thermal options.

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#### REFERENCES

- Mendes EV. As redes de atenção à saúde. *Ciênc. Saúde coletiva*. 2010; 15(5): 2297-2305.
- Mendes EV. 25 anos do Sistema Único de Saúde: resultados e desafios. *Estud. av.* 2013; 27(78):27-34.
- Brasil. Ministério da saúde. Informe Técnico. Campanha Nacional de vacinação contra a influenza. Brasília: Ministério da Saúde. 2014.
- Badke MR, Budó MLD, Alvim NAT, Zanetti GD, Heisler EV. Saberes e práticas populares de cuidado em saúde com o uso de plantas medicinais. *Texto e Contexto Enferm.* 2012; 21(2): 363-70.
- Brasil. Ministério da Saúde. Política nacional de práticas integrativas e complementares no SUS – PNPIC-SUS. Brasília: Ministério da Saúde; 2006.
- Mendieta MC, Souza ADZ, Vargas NRC, Piriz MA, Echevarría-Guanilo ME, Heck RM. Transmissão de conhecimento sobre plantas medicinais no contexto familiar: revisão integrativa. *Rev enferm UFPE on line.* 2014; 8(10): 3516-24.
- Goodman LA. Snowball Sampling. *Annals of Mathematical Statistics* [internet]. 1961; 32:148-70. [acesso em 18 abr 2015]. Disponível em: [http://projecteuclid.org/download/pdf\\_1/euclid.aoms/1177705148](http://projecteuclid.org/download/pdf_1/euclid.aoms/1177705148).
- Silvestre AL. Análise de dados e estatística descritiva. São Paulo: Escolar Editora; 2007.
- Campos HS. Gripe ou resfriado? Sinusite ou rinite? *JBM.* 2014; 102(41): 41-50.
- Franca CS, Menezes FS, Costa LCB, Niculau ES, Alves PB, Pinto JEB, et al. Analgesic and antidiarrheal properties of *Ocimum selloi* essential oil in mice. *Fitoterapia.* 2008;79(7-8):569-73.
- Unlu M, Ergene E, Unlu GV, Zeytinoglu HS, Vural N. Composition, antimicrobial activity and in vitro cytotoxicity of essential oil from *Cinnamomum zeylanicum* Blume (Lauraceae). *Food Chem Toxicol.* 2010;48(11):3274-80.
- But PP, He ZD, Ma SC, Chan YM, Shaw PC, Ye WC, et al. Antiviral constituents against respiratory viruses from *Mikania icrantha*. *J Nat Prod.* 2009;72(5):925-8.
- Perez-Amador MC, Ocotero VM, Balcazar RI, Jimenez FG. Phytochemical and pharmacological studies on *Mikania micrantha* H.B.K. (Asteraceae). *Phyton (B. Aires).* 2010;79(1):77-80.
- Silva ASB, Pinheiro BG, Figueiredo JG, Souza GEP, Cunha FQ, Lahlou S, et al. Antinociceptive and anti-inflammatory activities of the aqueous extract of *Mikania lindleyana* in rodents. *IJPSR.* 2012;3(6):1637-46.
- Ho SC, Lin CC. Investigation of heat treating conditions for enhancing the anti-inflammatory activity of citrus fruit (*Citrus reticulata*) peels. *J Agric Food Chem.* 2008;56(17):7976-82.
- Speroni E, Cervellati R, Costa S, Guerra MC, Utan A, Govoni P, et al. Effects of Differential Extraction of *Verbena officinalis* on Rat Models of Inflammation, Cicatrization and Gastric Damage. *Planta Med.* 2007;73(3):227-35.
- Souza KCB, Bassan VL, Schapoval EES. Influence of excipients and technological process on anti-inflammatory

- activity of quercetin and *Achyrocline satureioides* (Lam.) D.C. extracts by oral route. *Phytomedicine*. 2007;14(2-3):102-8.
18. Sun Z, Wang H, Wang J, Zhou L, Yang P. Chemical Composition and Anti-Inflammatory, Cytotoxic and Antioxidant Activities of Essential Oil from Leaves of *Mentha piperita* Grown in China. *Plos One*. 2014; 9(12): 1-15.
19. Tillan Capó JI, Benítez LA, Hernández PI, Carrillo C. Actividad antiartrítica del jarabe de *Allium sativum* L. *Rev Cuba Plantas Med*. 2007;12(2).
20. Piornedo RR, Souza P, Stefanello ME, Strapasson RL, Zampronio AR, Kassuya CA. Anti-inflammatory activity of extracts and 11,13-dihydrozaluzanin C from *Gochnatia polymorpha* ssp. floccosa trunk bark in mice. *J Ethnopharmacol*. 2011;133(3):1077-84.
21. Ghosh S, Chisti Y, Banerjee UC. Production of shikimic acid. *Biotechnol Adv*. 2012;30(6):1425-31.
22. Correia AM, Queirós L, Dias J. Pandemic influenza A (H1N1) in the North of Portugal: How did the autumn-winter wave behave? *Rev Port Pneumol*. 2010;16(6):880-6.
23. Valiente MAA, Tabela MG, Lazo GG, Hernandez DS, Del sol DD, Lemus RD. Acción antiedemagénica de los extractos de corteza del fruto de *Citrus sinensis* L. y *Citrus aurantium* L. en modelo de hiperpermeabilidad vascular en ratas. *Rev Cubana Plant Med*. 2008; 13(4).
24. Ministério da Saúde (BR). Agência Nacional da Vigilância Sanitária. Notificação de drogas vegetais. Resolução – RDC Nº 10 de 09 de março de 2010. Brasília: ANVISA, 2010.

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