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RESEARCH ARTICLE
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HOW MUCH OF THE LOCAL KNOWLEDGE ABOUT MEDICINAL PLANTS IS INCLUDED IN PUBLIC HEALTH POLICIES? A CASE STUDY FROM SOUTH BRAZIL

QUANTO DO CONHECIMENTO LOCAL SOBRE PLANTAS MEDICINAIS ESTÁ NAS POLÍTICAS PÚBLICAS DE SAÚDE? UM ESTUDO DE CASO NO SUL DO BRASIL

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ABSTRACT

The incorporation of traditional medicine in public health policies has been proposed by the World Health Organization (WHO). In Brazil this is reflected in RENISUS, an official list of medicinal plants of interest to the public health care system, with medicinal potential. Despite being an advance, this list reveals only a fraction of the biological and cultural diversity of Brazil. Using ethnobotanical data from two rural communities in Southern Brazil (Sertão do Ribeirão and Costa da Lagoa, Florianópolis municipality) we compared the RENISUS list with the lists of medicinal plants traditionally used. The similarity between the ethnobotanical lists was 26.32%, and between RENISUS and each ethnobotanical list was less than 5%. These results indicate the need to broaden the approach of the public health policies. The systematization of ethnobotanical data can be an interesting strategy for it.

KEYWORDS: ethnobotany, Jaccard similarity coefficient, pharmacopoeias, RENISUS, traditional medicine

RESUMO

A incorporação da medicina tradicional em sistemas públicos de saúde tem sido proposta pela Organização Mundial de Saúde (OMS). No Brasil isso se reflete na RENISUS, uma lista oficial de plantas medicinais de interesse ao sistema público de saúde, com potencial medicinal. Apesar de ser um avanço, essa lista reflete apenas uma fração da diversidade biológica e cultural do Brasil. Utilizando dados etnobotânicos de duas comunidades rurais no Sul do Brasil (Sertão do Ribeirão e Costa da Lagoa, município de Florianópolis) nós comparamos a lista RENISUS com listas de plantas medicinais usadas tradicionalmente. A similaridade entre as listas de plantas medicinais foi de 26.32%, e entre a RENISUS com cada lista etnobotânica foi menor que 5%. Esses resultados indicam a necessidade de uma abordagem mais ampla para as políticas públicas de saúde. A sistematização de dados etnobotânicos pode ser uma estratégia interessante para isso.

PALAVRAS-CHAVE: etnobotânica, coeficiente de similaridade de Jaccard, farmacopéias, RENISUS, medicina traditional

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INTRODUCTION

The role of local knowledge and healing practices are increasingly recognized as complementary to biomedicine (CALVET-MIR et al., 2008; ZANK and HANAZAKI, 2012; GRUCA et al. 2014), and tentatively incorporated into different public health systems (e.g.: STANGELAND et al., 2008; CHAUDHARY and SINGH, 2011). In accordance with the principles of Traditional Medicine Strategy of the World Health Organization (2002) the Brazilian Government approved a National Policy on Medicinal Plants and Herbal Medicines (CORRÊA et al., 2006) and since 2009 adopted a list of plants with phytotherapeutic interest, known as RENISUS (National List of Medicinal Plants for the Public Health Care System). This list includes plants with use for health care by Brazilians and plants with known medicinal properties, and is the basis to incorporate medicinal plants and herbal medicines into the public health care system (BRASIL, 2013). Although this initiative was a step forward in terms of public policies, the list could more accurately reflect the biological and cultural diversity within the country. Ethnobotanical studies can contribute to this proposal, considering the great focus on medicinal plants in this area. Until 2007, 67% of the published ethnobotanical papers in Brazil focused on medicinal plants (OLIVEIRA et al., 2009). The registration of local knowledge, indicating plants that comprise local pharmacopoeias, can be a rich source of information of plants that could be further included into RENISUS, reflecting the biological and cultural dimensions of knowledge and practices. In this scenario, the objective of this study was to reinforce the role of ethnobotany in defining public health policies to overcome the limitations of RENISUS in a local perspective, using ethnobotanical data from two communities from Southern Brazil as a case study. The RENISUS list is connected with the National Program of Medicinal Plants and Phytotherapics, which promote and recognize traditional practices in the use of medicinal plants. We expect a higher similarity between the studied communities, when compared with the RESINUS list, and if this hypothesis is supported we expect to show how the RENISUS list can be improved when taking into account the vast ethnobotanical repertoire about medicinal plants in Brazil.

METHODOLOGY

We calculated the similarity between three lists of medicinal plants – two ethnobotanical survey lists and RENISUS. The ethnobotanical surveys were done in traditional communities from Santa Catarina Island, which are: Sertão do Ribeirão (GIRALDI and HANAZAKI, 2010) and Costa da Lagoa/Canto dos Araçás. Data from Costa da Lagoa/Canto

dos Araçás were collected after prior informed consent (Authorization 651/10 of the Ethics Committee for Research with Human Beings of Federal University of Santa Catarina). We applied semi-structured interviews, including a free list of the medicinal plants known and used. The collaborators were sampled using the snowball method, with the inclusion criteria of being people who used medicinal plants as their curative practices, and resulted in 30 individual interviews. The two lists were compared to 63 species from RENISUS – although RENISUS has 71 medicinal plant topics, it does not correspond to 71 species since in some cases each topic indicates more than one species or only a genera. Data from the three lists were reviewed for synonyms and taxonomy. We excluded from the analysis cases with taxonomic uncertainties (e.g.: we had *Cucurbita pepo* L. in one list and *Cucurbita* sp. in other list, then we decided to exclude both plants from the analysis because it could be or not the same species). We considered 69 medicinal plants at Costa da Lagoa/Canto dos Araçás, 89 at Sertão do Ribeirão and the plants from RENISUS. We used The Plant List (2016) database to check scientific names. Collected plants were deposited at FLOR Herbarium (Federal University of Santa Catarina) and at the EAFM Herbarium (Federal Institute of Education, Science and Technology of Amazonas). We used Jaccard similarity coefficient (VALENTIN, 2000) to compare the presences and absences of species among the three lists.

RESULTS AND DISCUSSION

The similarity between the Costa da Lagoa/Canto dos Araçás list and RENISUS was 4.35% (Sj=0.0435), between the Sertão do Ribeirão list and RENISUS was 4.55% (Sj=0.0455); between the ethnobotanical studies was 26.32% (Sj=0.2632) and between all lists was 19.75% (Sj=0.1975)
(Figure 1). The remaining 45.05% referred to exclusive plants from the lists.

The ethnobotanical lists are more similar to each other than when compared with RENISUS – the similarity between each list with RENISUS is considerably lower. It is important to remember that Jaccard similarity coefficient allows comparisons within data sets. For

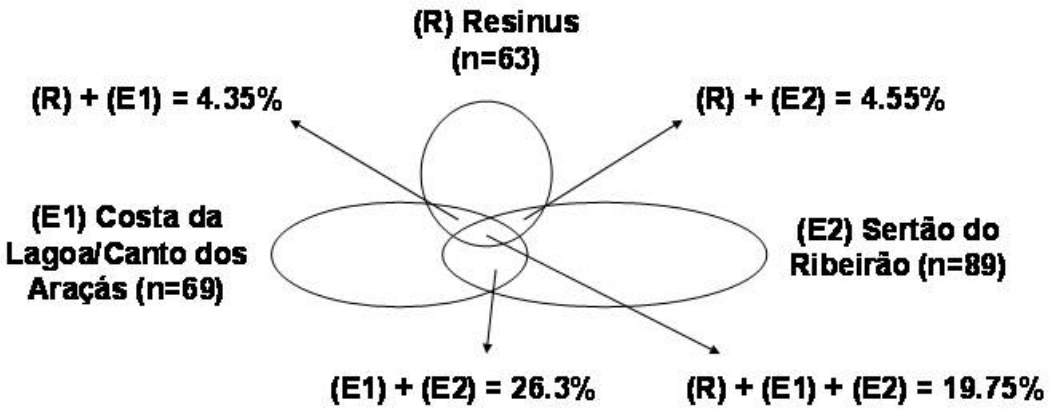

Figure 1: Diagram ilustrating the similarity of medicinal plants listed at Costa da Lagoa/Canto dos Araçás (E1) (n=29 interviews), Sertão do Ribeirão (E2) (n=13 interviews) and RENISUS (R)

example, Campos and Ehringhaus (2003) compared the local knowledge of palms used by indigenous and non-indigenous communities in the Amazon and found the Jaccard values relatively low – between Sj=0.326 and Sj=0.588 for general uses and between Sj=0.189 and Sj=0.341 for specific uses. Ladio and Lozada (2003) compared the similarity of edible plants in two Mapuche communities from Patagonia, Argentina, finding some similarity of knowledge (Sj=0.450) and use (Sj=0.461). De Boer et al. (2012) compared medicinal plant knowledge in three human groups from Lao, obtaining values ranging from Sj=0.44 to Sj=0.75, which were considered quite low since the groups share the same ecological area and have the same dependence on medicinal plants.

The similarities found in the present study were regarded as low. The low similarity between the ethnobotanical lists is an indicative of the variation in local knowledge about medicinal plants in Santa Catarina Island, and the need for further studies. The even lower similarity between RENISUS and each ethnobotanical list (less than 5%) indicate gaps to be filled in RENISUS to reach a more faithful reality of Brazilian medicinal plants traditionally used. A total of 25 medicinal plants common to the communities of Costa da Lagoa/Canto dos Araçás and Sertão do Ribeirão (Table 1) were not listed in RENISUS. This result may not be meaningful for the North and Northeast regions of Brazil – as there are other environments and cultural influences – but may it be for the Azoreans along the Southern coast. Brazil has a great biological diversity and a large amount of human groups with diverse knowledge associated with natural resources. Understandably, this biodiversity could hardly be summed up in a single national panorama.

Table 1. Common species of medicinal plants from RENISUS (R) and the ethnobotanical lists at Costa da Lagoa/Canto dos Araçás (E1) and Sertão do Ribeirão (E2)

Family	Specie	Similarity
AMARYLLIDACEAE	*Allium sativum* L.	common to 3 lists
APIACEAE	*Foeniculum vulgare* Mill.	common to 3 lists
ASPARAGACEAE	*Aloe vera* (L.) Burm. f.	common to 3 lists
ASTERACEAE	*Achillea millefolium* L.	common to 3 lists
ASTERACEAE	*Artemisia absinthium* L.	common to 3 lists
ASTERACEAE	*Bidens pilosa* L.	common to 3 lists
ASTERACEAE	*Cynara cardunculus* subsp. *flavescens* Wiklund	common to 3 lists
ASTERACEAE	*Gymnanthemum amygdalinum* (Delile) Sch.Bip. ex Walp.	common to 3 lists
ASTERACEAE	*Matricaria chamomilla* L.	common to 3 lists
LAMIACEAE	*Plectranthus barbatus* Andrews	common to 3 lists
LAURACEAE	*Persea americana* Mill.	common to 3 lists
MYRTACEAE	*Eugenia uniflora* L.	common to 3 lists
MYRTACEAE	*Psidium guajava* L.	common to 3 lists
MYRTACEAE	*Syzygium cumini* (L.) Skeels	common to 3 lists
PHYLLANTHACEAE	*Phyllanthus tenellus* Roxb.	common to 3 lists
RUTACEAE	*Ruta graveolens* L.	common to 3 lists
ADOXACEAE	*Sambucus australis* Cham. & Schltdl.	E1 + E2
AMARANTHACEAE	*Alternanthera brasiliana* (L.) Kuntze	E1 + E2
AMARYLLIDACEAE	*Allium cepa* L.	E1 + E2
APIACEAE	*Pimpinella anisum* L.	E1 + E2
ASTERACEAE	*Calea* sp.	E1 + E2
ASTERACEAE	*Cnicus benedictus* L.	E1 + E2
ASTERACEAE	*Cyrtocymura scorpioides* (Lam.) H.Rob.	E1 + E2
ASTERACEAE	*Sphagneticola trilobata* (L.) Pruski	E1 + E2

Family	Specie	Similarity
ASTERACEAE	*Tanacetum vulgare* L.	E1 + E2
CARICACEAE	*Carica papaya* L.	E1 + E2
COMMELINACEAE	*Dichorisandra thyrsiflora* J.C. Mikan	E1 + E2
FABACEAE	*Cajanus cajan* (L.) Millsp.	E1 + E2
FABACEAE	*Zollernia ilicifolia* (Brongn.) Vogel	E1 + E2
LAMIACEAE	*Lavandula angustifolia* Mill.	E1 + E2
LAMIACEAE	*Melissa officinalis* L.	E1 + E2
LAMIACEAE	*Plectranthus ornatus* Codd	E1 + E2
LAMIACEAE	*Rosmarinus officinalis* L.	E1 + E2
LYTHRACEAE	*Cuphea carthagenensis* (Jacq.) J.F. Macbr.	E1 + E2
MYRTACEAE	*Psidium cattleyanum* Sabine	E1 + E2
MYRTACEAE	*Syzygium aromaticum* (L.) Merr. & L.M. Perry	E1 + E2
PHYTOLACCACEAE	*Petiveria alliacea* L.	E1 + E2
POACEAE	*Cymbopogon citratus* (DC.) Stapf	E1 + E2
POLYGALACEAE	*Polygala paniculata* L.	E1 + E2
RUTACEAE	*Citrus reticulata* Blanco	E1 + E2
THEACEAE	*Camellia sinensis* (L.) Kuntze	E1 + E2
AMARANTHACEAE	*Dysphania ambrosioides* (L.) Mosyakin & Clemants	R + E1
CELASTRACEAE	*Maytenus ilicifolia* Mart. ex Reissek	R + E1
LYTHRACEAE	*Punica granatum* L.	R + E1
APIACEAE	*Petroselinum crispum* (Mill.) Nyman ex A.W.Hill	R + E2
BROMELIACEAE	*Ananas comosus* (L.) Merr.	R + E2
ZINGIBERACEAE	*Curcuma longa* L.	R + E2
ZINGIBERACEAE	*Zingiber officinale* Roscoe	R + E2

CONCLUSIONS

There are no doubts that RENISUS represents an improvement for the Brazilian public health system, as well as representing a way to include ethnobotanical knowledge in public health policies. According to guidelines of the National Medicinal Plant and Herbal Medicine Policy of Brazil, the Ministry of Health should encourage the development of research centers on medicinal plants, with as one of its purposes the constant update of RENISUS. The systematization of ethnobotanical data into state and/or regional levels could possibly give a better overview of the medicinal plants already known and used within the country. Different methods can be used to define which plants should be included into RENISUS, we used Jaccard similarity coefficient to give an example of what can be done to qualitatively compare ethnobotanical surveys.

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