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Knowledge of ethnoveterinary medicine in the Province of Granada, Andalusia, Spain

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ABSTRACT

Ethnopharmacological relevance: This paper constitutes an important contribution to the knowledge of biological resources used in ethnoveterinary practices (EVPs) in southern Europe, a territory with a clear lack of information on the subject.
Aim of the study: To catalogue, analyze, and disseminate the knowledge of plant and animal use in ethnoveterinary practices in the province of Granada. Data have been analyzed to highlight the similarities between ethnoveterinary practices and human ethnopharmacology for the same study area.
Methodology: Information was gathered through open and semi-structured interviews with local people, mainly elderly shepherds and farmers, in the western part of the province. The primary data have been supplemented with information on EVPs from previous ethnobotanical works for the province. Data were gathered using the same field methods.
Results: A total of 88 ethnoveterinary uses are documented for the treatment of 24 animal conditions. Of these, 82 uses involve 60 different plant species. Over three-quarters of these plants are also used for some human conditions in the same study area. Moreover, 6 animal species were catalogued for 6 other ethnoveterinary uses; four of these species were also used for similar conditions in humans. Ritual and health-prevention practices are also discussed.
Conclusions: EVPs in southern Spain involve a high number of species and conditions and are strongly linked to folk tradition (i.e. how local people understand certain conditions and their treatment, sometimes in a ritual manner). Unfortunately, some evidence of their slow disappearance has been found.

1. Introduction

It has been said that there is increasing interest in the traditional use of medicinal plants in the West today (Rates, 2001; Palombo and Semple, 2001; Viegi et al., 2003). While most research on the subject focuses on the use of plants in human medicine, knowledge of the medicinal use of biological resources is not restricted to humans, and also extends to the treatment of animal conditions (Lans et al., 2006). Literature on plants used in veterinary medicine, defined as ethnoveterinary medicine (McCorkle, 1986) and commonly referred to as Ethonoveterinary Practices (EVPs), is increasing, and is highly developed in some countries, for example Italy (Viegi et al., 2003). Recent papers for Africa (Gradé et al., 2009; Moreki et al., 2010; Opiro et al., 2010; Gakuya et al., 2011), America (Jernigan, 2009; Martinez and Lujan, 2011; Monteiro et al., 2011; Souto et al., 2011; Lans and Turner, 2011) and Asia (Gaur et al., 2010; Galav et al., 2010; Dilshad et al., 2010; Raziq et al., 2010; Phondani et al., 2010; Ghorbani et al., 2011; Deshmukh et al., 2011; Song and Kim, 2011) are testimony of this growing interest. Some recent works also discuss animals used in veterinary medicine, mainly in Brazil (Barboza et al., 2007; Confessor et al., 2009), and more information on zootherapeutic remedies can be found in Quave et al. (2010) and Benítez (2011).

Although some ethnobotanical information is available for the province of Granada, few works focusing on plants used in veterinary medicine have been published (González-Tejero et al., 1999). Some works on the subject exist for other Iberian regions (Blanco et al., 1999; Agelet and Vallès, 1999; Hualde and Ormazábal, 2002; Bonet and Vallès, 2007; Akerreta et al., 2010; González et al., 2011). A great deal more information can be found in several ethnobotanical books (Villar et al., 1987; Mulet, 1991; Blanco, 1998; Verde et al., 1998; Fajardo et al., 2000; Verde et al., 2000; Parada et al., 2002; Lastra, 2003; Fajardo et al., 2007; Pardo-de-Santayana, 2008; Verde et al., 2008; Carvalho, 2010) and unpublished works (such as Ph.D. or Degree Theses, for example Mesa, 1996; Guzmán, 1997; Fernández-Ocaña, 2000; Aceituno,

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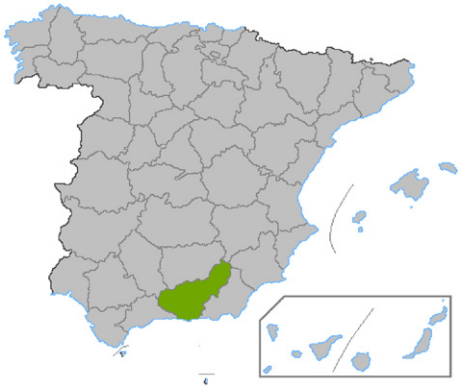

Fig. 1. Study area: Granada Province.

2010). However, in our opinion, more fieldwork needs to be carried out.

We would like to mention some important points regarding our choice of study area. Andalusia, the region of Spain which includes Granada, is a distinctive territory with a high percentage of the population living in rural areas where livelihoods are closely linked to tradition and the environment. This is reflected in a high degree of ethnobiological knowledge in the region. Statistics for the province of Granada (I.E.A.-S.I.M.A., 2009), which covers an area of 12,635 km^2, show an ageing population with somewhat more than 16% of the 907,000 inhabitants over 65 years of age. About 25% of the population lives in the capital, Granada city, but in 96 of its 168 municipalities (57%) the official number of inhabitants is less than 2000. These facts, along with the high ethno- and biodiversity (as mentioned by some authors for the whole Iberian Peninsula; Bonet and Vallès, 2003, and specifically for the province of Granada; Benítez et al., 2010a), make it a suitable region for ethnobiological studies. This paper discusses the plants and animals used in EVPs in the province, and compares them with those used in traditional plant-based human medicine. Observations on some ritual practices are also included.

2. Methodology

2.1. Field studies

The information on ethnoveterinary medicine comes mainly from the first author's Ph.D. fieldwork, currently unpublished (Benítez, 2009), which was carried out between 2003 and 2008 and focuses on the western part of the province of Granada (primary data). It has been supplemented with data from several ethnobotanical studies that were carried out by our research group in the province (Múñoz-Leza, 1989; González-Tejero, 1990) and in the region (González-Tejero et al., 1999, using ethnobotanical survey data from Granada only). Table 1 shows the source of the data and some information pertinent to these studies. The study area for this paper thus encompasses the entire province of Granada (Fig. 1). The information was gathered following the same methods in all the works; through open and semi-structured interviews with local informants (Cotton, 1996; Martin, 2004). Interviews were performed in Spanish with native people in different places such as homes, public places, and pensioners' centres, but most were performed in the countryside, walking with the interviewee in search of the used plants. Most interviews were performed on a one-to-one basis, although a number of group interviews were carried out with good results. We performed a number of preliminary questionnaires in places such as primary schools, adult education centres and pharmacies, through which we acquired information about where to locate informants and conduct interviews. Ethical guidelines of the International Society of Ethnobiology were followed and verbal consent to publish the data was obtained from our informants prior to interviewing. More details on the methodology and the association of emic and ethic cathegories for each condition can be seen in Benítez (2009).

For the main ethnobotanical data used in this paper (Benítez, 2009), 279 people were interviewed in the western part of the province. The age range of interviewees was mainly from 50 to 60 years and the gender distribution was 56% men and 44% women. As expected, data on ethnoveterinary medicine mostly came from elderly people who were involved in the breeding and maintenance of livestock (mostly farmers and shepherds) or who worked in agriculture. In total, 68 people gave information on ethnoveterinary practices, comprising 24% of total informants Most of the informants who provided data on veterinary medicine were men (72%, 49 people), illustrating a deviation of the gender ratio.

In the studies we used as supplementary sources of data, some of which date back more than 20 years (see references above), the data were treated differently from the more recent fieldwork (Benítez, 2009), and information about informants was not included. Furthermore, as information on the number of reports for each ethnoveterninary use was missing in these works, the total number of reports given in this paper comes from Benítez (2009), and relates to the western part of the province (see Benítez et al., 2010b for a map). For the 13 animal conditions which are only found in the other referenced works, data on number of reports are missing. The number of reports in Table 2 should be understood only as an approximation of the most reported plants and conditions for EVPs in the province.

Although scarce, information on the use of animals in veterinary medicine has also been included, all of which comes from Benítez (2009). Mineral remedies are not covered in this paper.

2.2. Data analysis

Primary data regarding the plants, uses and informants were compiled in a database using Microsoft Access v.2007, including cross-reference information on the plants used (scientific and vernacular names, botanical families, ecology, voucher number, parts used and other fields), conditions (pathological group, methods of administration and preparation, number of reports) and informants (gender, age, locality, profession, education). For this paper, we extracted the information on EVPs from the original database (more details in Benítez (2009)) and supplemented it with the data

Table 1
Bibliographical sources of data and information about these studies.

Source	Study area	Study area (km^2)	Type of work	Main subject	PU	AU	Information included
Benítez (2009)	Western Granada province	2041	Ph.D. thesis	Ethnobiology	67	6	U, PU, AF, V, I, R
González-Tejero et al. (1992)	Andalusia	87,268	Review	Ethnoveterinary	22	0	U, PU, AF
González-Tejero (1990)	Granada province	12,531	Ph.D. thesis	Ethnobotany	12	0	U, PU, AF, V
Múñoz-Leza (1989)	Lecrin Valley, Granada	460	Degree thesis	Ethnobotany	11	0	U, PU, AF, V

PU: number of plant uses reported in each work; AU: number of animal uses reported in each work. Information included: U: uses; PU: part used; AF: administration form; V: voucher numbers; I: informant data; R: reports.