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Ethnoveterinary practices in the Tena Valley and Biescas Area (Spanish Pyrenees) for the care of sheep and goats

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Abstract. This study covers traditional healing practices for sheep and goats recorded in the Tena Valley and Biescas Area (Spanish Pyrenees). 30 informants were interviewed and 60 different plant taxa were registered belonging to 35 botanical families, as well as 7 herbal remedies, 1 fungus, 9 elements of animal origin, 9 of mineral origin, 1 of chemical origin and 7 handling practices or other remedies. In total, 149 practices for medicinal, reproductive or production uses in small ruminants were recorded. These traditional practices are very useful for organic farming as alternatives to synthesised medicinal products and as non-conventional feeds, and contribute to maintaining traditional knowledge, which has been passed on from one generation to the next and has been falling into disuse in recent times. Therefore there is an urgent need to record knowledge related to ethnoveterinary practices to conserve them and thus enable the development of new remedies.

Keywords. Ethnobiology – Organic farming – Traditional farming – Indigenous knowledge – Small ruminants – Pastoralism.

Pratiques ethnovétérinaires dans la vallée de Tena et la zone de Biescas (Pyrénées espagnoles) en matière de soins de santé aux ovins et caprins

Résumé. *Cette étude porte sur les pratiques curatives traditionnelles chez les ovins et caprins, rapportées dans la vallée de Tena et la zone de Biescas (Pyrénées espagnoles). Un entretien a été mené auprès de 30 personnes, et 60 taxons végétaux différents ont été répertoriés appartenant à 35 familles botaniques, ainsi que 7 remèdes à base de plantes, 1 provenant de champignons, 9 éléments d'origine animale, 9 d'origine minérale, 1 d'origine chimique et 7 pratiques liées à la gestion ou autres remèdes. Au total, 149 pratiques utilisées en médecine vétérinaire, reproduction ou production chez les petits ruminants ont été constatées. Ces pratiques traditionnelles sont très utiles en élevage biologique comme alternatives aux produits médicaux synthétiques et comme aliments non conventionnels, et contribuent à la préservation des savoirs traditionnels, qui sont transmis de génération en génération et sont tombés en désuétude de nos jours. Par conséquent, il est nécessaire et urgent de documenter ces savoirs liés aux pratiques ethnovétérinaires pour les conserver et permettre ainsi le développement de nouveaux remèdes.*

Mots-clés. *Ethnobiologie – Élevage biologique – Élevage traditionnel – Savoirs locaux – Petits ruminants – Pastoralisme.*

I – Introduction

Ethnoveterinary medicine or popular veterinary medicine is the "interdisciplinary and holistic study of local knowledge associated to practices, skills, beliefs and social structures involved in animal production, in order to apply them to agricultural development projects aiming to improve the population's standard of living and increase their production" (McCorkle, 1995).

According to some studies (McCorkle and Mathias-Mundy, 1992), the integration of ethnoveterinary practices into conventional veterinary medicine could save money, energy and natural resources. Furthermore, according to the current regulations on ecological livestock farming in Europe, (EC) No 889/2008 (EC 2008) "phytotherapeutic and homeopathic products, trace elements (…) shall be used in preference to chemically-synthesised allopathic veterinary treatment or antibiotics, provided that their therapeutic effect is effective for the species of animal, and the condition for which the treatment is intended". Therefore, this type of study is essential to give livestock farmers and technical experts access to this information as it is becoming scarce.

The study area chosen was the Tena Valley and Biescas Area in the Spanish Pyrenees, in the Ordesa-Viñamala Unesco Biosphere Reserve. The local economy has traditionally been based on livestock farming but in the later part of the twentieth century, migration from the area and tourism have decreased farming activities as well as the associated traditional know-how. For this reason it is vital to investigate the knowledge related to ethnoveterinary practices, in order to maintain them and contribute to the development of new remedies.

II – Materials and methods

Information was collected using semi-structured interviews to farmers, shepherds and housewives in the last years. Thirty people over 50 years old were interviewed. Most of the study participants were born in, and reside in the valley. All data, were obtained by means of an informal conversations ith the subjects interviewed accompanied by a survey guide that included pre-determined questions. All 30 interviewees were visited once except one subject who, given his high level of knowledge on the matter, received visits at two different times of the year: winter and spring. The 31 interviews were conducted every other week from February to June 2015.

The data collected was classified according to the pertinent bodies and functions, following the classification in the *The Merck Veterinary Manual: A Handbook of Diagnosis, Therapy, and Disease Prevention and Control for the Veterinarian* (Fraser, 1993), and was divided into the following categories: Blood, lymphatic and cardiovascular systems; digestive system; endocrine system; eye and ear; generalized conditions; immune system; metabolic disorders; musculoskeletal system; nervous system; physical injuries; reproductive system; respiratory system; skin; urinary system; management, rearing and nutrition. Witchcraft has also been added to this classification, as in other research work in ethnoveterinary practices (Gómez, 2011), which have documented preparations of mystic origin aiming to prevent phenomena such as witchcraft, storms, etc. as well as instruments such as a hen's feather used to apply other remedies or *Pinus sylvestris L.* used for marking cattle.

This compilation focuses solely and exclusively on the properties affecting animals and, gathers information not only on preparations made from plants but also on all types of remedy related to animal production and health. It is likewise noteworthy that not only does this study gather information provided by the interviewees and other bibliographical sources but this information is also submitted to scientific study to ascertain their viability or efficacy. Data from Villar *et al*. (1992) is also included as well as the information provided by the interviewees.

III – Results and discussion

As indicated in figure 1, most remedies compiled in this study correspond to plant species (64%), followed by those of mineral and animal origin (each 10%), plant remedies and handling practices (7% each one), and finally chemical origin and fungi species(1% each one).

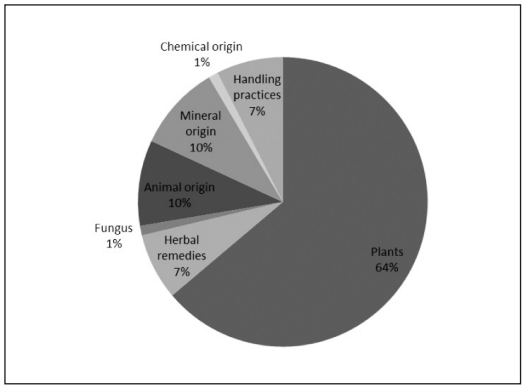

Fig. 1. Distribution of remedies according to origin.

The plant taxa belong to 35 different botanical families. The 6 different species of the Compositae family are those most frequently used in the study area, followed by the 4 different species of Leguminosae (Fig. 2).

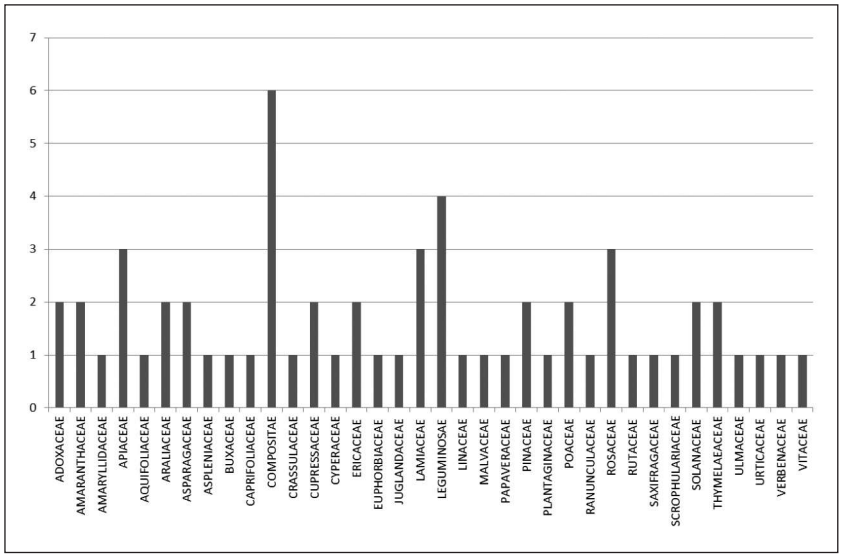

Fig. 2. Number of species according to botanical family.

The most popular plant species is *Sambucus nigra L*., cited 16 times, used to improve respiratory, digestive and mammary conditions. The same uses have been recorded by different authors (Villar *et al*., 1992; Navarro, 1994). Copper sulphate (mineral remedy) was also mentioned by 16 subjects as a remedy to heal ruminant hoof wounds.

Concerning remedies of animal origin, cobwebs were most frequently mentioned (4 subjects) as blood thinners. Cobwebs are a widespread therapeutic resource used mainly to treat haemorrhages (González y Vallejo, 2012). There are numerous bibliographical citations for this use in the province of Huesca and in the rest of the Iberian Peninsula (Ullod, 1994; Ibáñez, 2009).

The only fungus that the interviewees were aware of in popular veterinary practice is *Lycoperdon spp*. of the Agaricaceae family, for local haemostatic use. Villar *et al*. (1992) also report use of the fungus to stop bleeding.

The most cited plant remedy is ground carbon, mentioned by 12 subjects and applied to wounds to prevent myiasis.

Zotal® (chemical origin) was very popular against myiasis throughout the study area and according to some subjects it is also used to treat scabies. Other ethnoveterinary studies also mention the widespread use of this product in Cadiz and Huelva (Spain) (Mata *et al*., 2004; Gómez, 2011).

Cuts for bleeding sheep are the most frequently mentioned handling practices (9 subjects) to treat some diseases. In particular, the ear, the conjunctiva of the eye (more effective for type D enterotoxemia), or the tip of the tail (more effective for anthrax). These practices are still followed when the animal shows symptoms of type D enterotoxemia.

On the other hand, the largest number of remedies has been reported for generalized conditions (26 for generalized conditions, 23 for the reproductive system and 22 for the digestive system). As shown in figure 3 different uses have been compiled for some of the remedies, reaching a total of 87 remedies for 149 different uses.

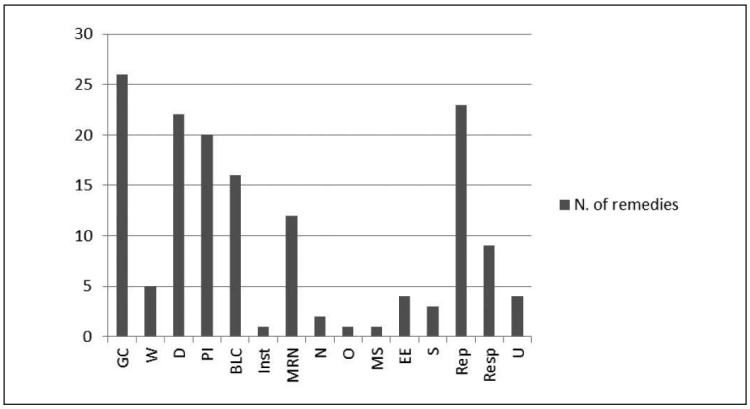

Fig. 3. Number of remedies recorded for each clinical pattern. [The clinical patterns correspond to: generalized conditions (GC), witchcraft (W), digestive system (D), physical injuries (PI), blood, lymphatic and cardiovascular systems (BLC), instrument (inst), management, rearing and nutrition (MRN), nervous system (N), others (O), musculoskeletal system (MS), eye and ear (EE), skin (S), reproductive system (Rep), respiratory system (Resp), urinary system (U)].

IV – Conclusions

This study shows that there is still considerable information related to ethnoveterinary practices, both concerning the number of remedies gathered in the study and in the quality of such practices, however they are also little known and in danger of disappearing forever, as most of the subjects interviewed are advanced in years and these traditions are no longer passed on orally to the younger generations.

A total of 94 elements are used for productive, reproductive or medicinal purposes.

The data recorded in this study is very useful for small ruminant farming, as some of these remedies can be used as alternatives to pharmaceutical products, especially in organic farming. On the other hand, some of the practices reported, such as the use of mastiff dogs to protect the flocks from wolves or bears, are being recovered in some areas of the Iberian Peninsula to prevent attacks on cattle. This goes to show that sometimes innovation means reverting to past practices and therefore measures should be taken to prevent this type of knowledge from disappearing. Likewise, studies are needed to assess and validate the efficacy of these practices.

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