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A12

CHARCOAL ANATOMY OF SPECIES FROM THE ARGENTINE PUNA

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The Antofagasta de la Sierra (Catamarca) locality lies in the southern sector of the Argentine Puna; its landscape presents wavy plains, mountains and many volcanoes. The climate is cold, dry and frequent winds blows from the Southwest. Fitogeographically speaking, it belongs to the Provincia Puneña where the genus *Fabiana*, *Parastrephia*, *Acantholippia*, *Senecio*, *Baccharis* and *Junellia* are.

The locality has many archaeological investigations and charcoal remains are often found. In the study of charcoal remains it is essential to have contemporary reference material in order to obtain accurate taxonomic identifications. This reference material should undergo the same processes than the archaeological remains in order to reproduce the same conditions in both samples. In this context, the aim of this work was to start a charcoal collection that will be useful for the identification of archaeological charcoal remains obtained in the locality. The stem of the following species were carbonized: *Acantholippia deserticola*, *Adesmia erinaceae*, *A. horrida*, *A. minor*, *Artemisia copa*, *Atriplex imbricata*, *Baccharis incarum*, *Chquiraga atacamensis*, *Ephedra breana*, *Fabiana bryoides*, *F. punensis*, *Jumellia seriphoides*, *Mulinum crassifolium*, *Parastrephia lucida*, *P. quadrangularis*, *Senecio santelisis*, *S. viridis*, *Neosparton ephedroides* and *Neuontobotrys tarapacana*. The charcoal obtained was studied under binocular loupe and the three typical wood sections were photographed with SEM. The binocular anatomy of each species was described. The results show the permanence of diagnostic features of each species even under the effect of temperature as well as anatomical modifications due to it.

A13

PERFORMANCE OF LAYING HENS AND FATTY ACIDS COMPOSITION OF THEIR EGGS AFTER FEEDING WITH RAPESEED 00 (CANOLA®) EXPELLER

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Eggs are an excellent human food source of high quality proteins and can be a source of omega 3 fatty acids that are important for health and development. A non-transgenic variety of rapeseed (*Brassica nappus*) that does not contain significant amounts of antinutritional substances and is rich in omega 3 fatty acids is called Canola® or rapeseed 00. The objective of this study was to evaluate the effect of substituting soybean extrusions, common in rations, by Canola expeller on the performance of classic Lohmann laying hens and analyze the impact of the substitution on the fatty acid composition of the egg. We worked with 100 laying hens, which were 30 weeks old at the beginning of the trial. They were divided into 2 groups, one group received standard food and the other received the one in which 8% Canola expeller was used. The food was supplied *ad libitum*. The test was carried out for 3 months. The fatty acid composition of the lipids of the eggs and the food was analyzed by gas chromatography. The food with canola contained 60% more alpha linolenic acid (18:3 omega 3), than the standard food. The content of omega 3 fatty acids in the eggs increased significantly. Egg production and conversion increased significantly. The weight of the eggs decreased significantly, although the values were found within those that appear in the manual of the line. The canola expeller seems to be useful for layer hen's food and generate an enriched product from the point of view of the human nutrition.

A14

THE VEGETAL DEFENSE INDUCING ACTIVITY OF HET DEPENDS ON ITS REDOX STATE

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It was previously reported that the ellagitannin HeT, obtained from strawberry leaves, has antibacterial properties and is also an inducer of the plant defense response. It was also shown that the antibacterial activity is due to a strong interaction with the plasma membrane that affects the flow of electrons and causes the oxidation of the HeT molecule. In this work we investigated whether, as with bacteria, HeT is oxidized by the interaction with plant cell, and if the redox state of HeT influences its activity as an inducer of plant defense. First, tests were carried out by UV-Vis spectroscopy where it was demonstrated that the interaction of HeT with isolated strawberry cells causes the oxidation of HeT. Subsequently, biochemical, molecular and phytopathological tests were carried out with HeT in the

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