

Study and application of ultrafined traditional Chinese veterinary medicine in animal productionS.J. Yu¹, L.L. Chen², J.L. Yan², K.J. Guo¹ and G.Z. Zhang^{2,3}

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As living standards have been increasing, Chinese consumers put forward higher requirements on the health, safety and nutrition value of food, therefore organic food has become the first choice for more and more consumers. The superiority of safety and efficacy of Traditional Chinese Veterinary Medicine (TCVM) makes TCVM the first choice in organic farms for raw feed materials and medication. TCVM can enhance animal's immunity and health by multi-target effects mechanisms so as to improve animal performance and product quality. To improve the effectiveness of TCVM, Ultra-fine comminution technology was developed to break the cell wall into fragments and release the active ingredients in order to improve their bioavailability. To test the effects of Dandelion Ultra-fine Powder (DUP) on animal health, 60 mid-lactation dairy cows were randomly chosen in one farm of Mengniu Group. DUP were mixed into TMR, which was fed to cows twice per day. DHI and California Mastitis Test was employed and daily milk production was recorded. The result showed that the average milk production increased from 28.5 kg/d at the beginning to 29.9 kg/d as the average of whole trial period even though the days in milk was about 210 d. The Somatic cell count (SCC) which originally ranged from 180,000 to 2,060,000, decreased by 81% on 7th day after the addition of DUP. Clinic mastitis incidence reduced about 6.3%. In conclusion, DUP had significant effects on reducing SCC of the cow, preventing the cow's clinic and subclinic mastitis, and in turn improving the milk production. The results implied that ultra-fined TCVM was an effective approach to organic production.

Effect of maternal dietary condensed tannins on coccidiosis and gut immunity in suckling lambsJ. Pelegrin-Valls¹, J. Álvarez-Rodríguez¹, B. Aquilue¹, M.J. Martín-Alonso¹, C. Baila², S. Lobón², M. Joy² and B. Serrano-Pérez¹

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In recent years, in animal nutrition there has been an increasing interest in alternative nutrients with antiparasitic properties. However, in Spain, the production system for suckling lambs is characterised by being fed mainly by mother's milk until slaughter. This study hypothesised that the use of sainfoin (*Onobrychis viciifolia*) as a source of condensed tannins (CT) in the diet of ewes may improve the intestinal health of lactating lambs by reducing their faecal coccidian oocyst count. Following lambing, 12 Rasa Aragonesa ewe-lamb pairs were allocated to one of two diets, in individual pens, during 30.2±3.5 days of lactation: SAINFOIN diet (fresh sainfoin *ad libitum* and 200 g/day of barley as a supplement; n=6) and SAINFOIN+PEG diet (fresh sainfoin *ad libitum*, polyethylene-glycol 'PEG' and 200 g/day of barley as a supplement; n=6). On the slaughter day (11.3±0.8 kg of body-weight), blood samples were collected for plasma metabolites analyses and rectal faeces were sampled for oocyst count. Jejunal and ileal tissues were sampled for determining pro-inflammatory and regulatory cytokine gene expression by qPCR. Data were analysed with one-way least square model. The results for urea, creatinine and fructosamine showed no difference between SAINFOIN+PEG and SAINFOIN groups (31.0 vs 29.2±2.6 mg/dl; 0.62 vs 0.6±0.06 mg/dl; 185.1 vs 194.7±8.1 µmol/l; respectively, P>0.05). Nevertheless, maternal SAINFOIN diet tended to reduce the percentage of lambs that shed more than 10 eggs/g oocyst count (83.3 vs 33.3% P=0.07). Furthermore, lambs from the SAINFOIN diet group showed up-regulated mRNA levels of the pro-inflammatory cytokine, tumour necrosis factor- α (TNF α) in jejunal and ileal tissues, along with down-regulation of the T regulatory cytokine transforming growth factor- β 1 (TGFB1) in jejunal tissue (P<0.05). In conclusion, maternal dietary CT reduce coccidian oocyst excretion probably mediated by a counterbalance between pro-inflammatory and regulatory cytokines in the intestinal tract.