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**Effect of long term supplementation with *Lippia spp.* extract on meat quality parameters in heavy pigs**Sara Chiapparini<sup>1</sup>, Raffaella Rossi<sup>1</sup>, Federica Maghin<sup>1</sup>, Siria Tavaniello<sup>2</sup>, Giuseppe Maiorano<sup>2</sup>, Carlo Corino<sup>1</sup><sup>1</sup>Dipartimento di Scienze Veterinarie per la Salute, la Produzione Animale e la Sicurezza Alimentare, University of Milano, Italy<sup>2</sup>Dipartimento Agricoltura, Ambiente e Alimenti, University of Molise, Campobasso, Italy

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In the recent year, considerable attention has been focused on the improvement of meat quality parameters. The general trend towards the reduction of synthetic substances since the restriction in 2006 of the use of antibiotic has increased the interest in studying natural substances. The aim of the study was to investigate the effects of long term dietary supplementation in pig with plant extract (PE) from *Lippia spp.*, titrated in verbascoside (5 mg/kg feed), from weaning to slaughter on growth performances, nutritional profile and meat quality parameters. Eighteen pigs of initial live weight (LW) of 23.6 kg were assigned to two experimental groups: the first fed a basal diet (CON) and the second one fed a basal diet supplemented with hydroalcoholic plant extract (PE) from *Lippia spp.* for 7 months. At slaughter (169.8 kg LW), the *longissimus dorsi* (LD) muscle was sampled from all pigs ( $n = 18$ ), vacuum packaged and stored at  $-20^{\circ}\text{C}$  for 14 days until physical and chemical analyses. The data were analysed by one way Analysis of Variance (ANOVA) using SPSS (IBM - SSPS Statistics 24). Dietary supplementation with PE did not affect growth performance, carcass traits, colour and pH of LD. Muscle drip loss was slightly higher ( $p = .068$ ) in CON group than in pigs fed with PE (3.42% vs 2.93%, respectively). In addition, the total losses was lower ( $p < .05$ ) in LD muscle from pigs fed PE than controls (17.82% vs 19.2%, respectively). Dietary PE supplementation decreased ( $p < .05$ ) cholesterol content of meat (57.8 mg/100g vs 51.0 mg/100g). Dietary PE was not able to influence intramuscular collagen amount and hydroxylysylpyridinoline (HLP) concentration but the collagen stability (moles of HLP/mole of collagen) resulted higher ( $p < .05$ ) in LD from pigs fed PE than controls (0.167 mol/mol vs 0.132 mol/mol respectively). The present data showed that dietary supplementation with *Lippia spp.* extract is able to improve both technological and nutritional quality of LD muscle. This dietary supplementation is able to enhance nutritional quality of pork, decreasing the cholesterol content. Future studies are required to clarify the optimal length and dosage of dietary supplementation in heavy pigs in order to verify the plant extract efficacy in dry cured products.

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**Fatty acids and oxidative stability of meat from lambs fed linseed and brewers spent grains**Valentina Roscini<sup>1</sup>, Giuseppe Luciano<sup>1</sup>, Mariano Pauselli<sup>1</sup>, Miriam Iacurto<sup>2</sup>, Nastaran Samadirad<sup>1</sup>, Silvia Ruggeri<sup>1</sup>, Luciano Morbidini<sup>1</sup><sup>1</sup>Dipartimento di Scienze Agrarie, Alimentari ed Ambientali, University of Perugia, Italy<sup>2</sup>Centro di Ricerca per la Produzione delle Carni e il Miglioramento Genetico, Consiglio per la Ricerca in Agricoltura e l'Economia Agraria, Monterotondo (RM), Italy

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Agro-industrial by-products may be rich sources of bioactive compounds able to act as antioxidants and modulators of the lipid metabolism in ruminants. Therefore, research is focusing on their use in ruminant feeding to reduce production costs and to improve product quality. Brewers spent grain (BSG) is the typical brewery by-product, consisting of residual grain husks and compounds not soluble in the mashing and lautering processes. Residual polyphenols and vitamins are commonly recovered in BSG. The aim of this study was to assess in growing lambs the effects of including BSG in a diet enriched in n-3 fatty acids on meat's fatty acid composition and on its oxidative stability. Twenty-one weaned Appenninica male lambs were allotted into three equal groups and fed a diet with a 30:70 forage:concentrate ratio. The forage was grass hay, while each group received one experimental concentrate: control (C; based on corn and broad bean), linseed (L; containing 20% DM crushed linseed) and linseed + BSG (BSGL; containing 20% dried BSG and 20% DM crushed linseed). The dietary treatment did not affect the main growth performance parameters. Compared to the control diet, feeding linseed alone or in combination with BSG resulted in a 3, 3, 1.5 and 1.5 fold increase in the content of C18:3 n-3, C18:1 n-9, C18:2 n-6 and cis-9, trans-11 C18:2 in the intramuscular fat ( $p < .05$ ). Lambs in the L group showed a higher level of trans-10 and trans-11 C18:1 isomers in the muscular fat ( $p < .01$ ), compared to the C group, while the BSGL diet produced intermediate levels. Lipid oxidation, measured as TBARS values after 3 and 7 days of storage in modified atmosphere was reduced by feeding the BSGL diet ( $p < .05$ ). At least two possible alternative or additive reasons may explain this result. On one hand, the BSGL diet contained a higher concentration of  $\alpha$ -tocopherol, compared to the L and the C diet (41.4, 37.2 and 29.7 mg/kg, respectively). On the other hand, while the three experimental concentrates had comparable levels of total phenolic compounds (4.6 g/kg, on average), the BSGL diet had a lower content of the poorly