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## Antibacterial Activity of Standard Eugenol against *Salmonella* spp.

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### Abstract

Eugenol (C<sub>10</sub>H<sub>12</sub>O<sub>2</sub>), is an allyl chain-substituted guaiacol, i.e. 2-methoxy-4-(2-propenyl) phenol. Eugenol is a member of the allylbenzene class of chemical compounds. It is a clear to pale yellow oily liquid extracted from certain essential oils especially from clove oil, nutmeg and cinnamon and bay leaf. It is slightly soluble in water and soluble in organic solvents. It has a pleasant, spicy, clove-like odor. Eugenol has been used at least since the nineteenth century and is still used in perfumeries, as flavourings, in analgesics, biocides, antiseptics, and in local anaesthetic due to its anti-inflammatory, and antibacterial effects. The aim of this study was to determine the in vitro antibacterial activities of standard eugenol against *Salmonella* spp. Forty eight samples of pig feces (n=16), sewage (n=3), pen floor (n=3), water (n=2) and pork (n=24) were treated with several concentration levels (0.0061 to 6.25 µl ml<sup>-1</sup>) of standard eugenol in Mueller Hinton Agar (MHA). The minimal inhibition concentration (MIC) of the standard eugenol was lowest (0.0976 µl ml<sup>-1</sup>) in 70.8 % of pork samples for *S. risen* and in 12.5 % of pork samples for *S. lagos* and *S. krefeld*. At 0.1953 µl ml<sup>-1</sup> eugenol showed antibacterial activities of *S. rissen* in 4.2 % of pork samples and at 0.3906 µl ml<sup>-1</sup> eugenol showed broad antibacterial activities of 7 strain of *Salmonella* spp. (*S. rissen*, *S. krefeld*, *S. weltevreden*, *S. stanley*, *S. derby*, *S. salamae*, *S. bovismorbifican*) in all types of samples (100% of feces, sewage, pen floor and water). We further intend to determine effectiveness of standard eugenol as feed supplement in weaned pig diets for controlling diarrhoeal bacteria.

**Keywords:** *Salmonella* spp, standard eugenol, antibacterial activity