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Monostrain, multistrain and multispecies probiotics--A comparison of functionality and efficacy

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Abstract

This literature review was carried out to make a comparison of functionality and efficacy between monostrain, multistrain and multispecies probiotics. A monostrain probiotic is defined as containing one strain of a certain species and consequently multistrain probiotics contain more than one strain of the same species or, at least of the same genus. Arbitrarily, the term multispecies probiotics is used for preparations containing strains that belong to one or preferentially more genera. Multispecies probiotics were superior in treating antibiotic-associated diarrhea in children. Growth performance and particularly mortality in broilers could be improved with multistrain probiotics. Mice were better protected against *S. Typhimurium* infection with a multistrain probiotic. A multispecies probiotic provided the best clearance of *E. coli* O157:H7 from lambs. Rats challenged with *S. Enteritidis* showed best post-challenge weight gains when treated with a multispecies probiotic. Possible mechanisms underlying the enhanced effects of probiotic mixtures are discussed. It is also emphasized that strains used in multistrain and multispecies probiotics should be compatible or, preferably, synergistic. The design and use of multistrain and multispecies probiotics should be encouraged.