

**Probiotic and synbiotic preparations limit growth of multidrug resistant pathogens *in vitro***Helen Smith<sup>1\*</sup>, Jose Soto<sup>2</sup>, Ronan Power<sup>2</sup>, Richard Murphy<sup>1</sup><sup>1</sup>Alltech European Bioscience Centre, Summerhill Road, Dunboyne, Co. Meath, Ireland.<sup>2</sup>Alltech Global Headquarters, 3031 Catnip Hill Rd, Nicholasville, KY 40356, United States.

Bacteria spp.	<u>Zone of inhibition (mm)</u>				
	Synbiotic 1	Synbiotic 2	Synbiotic 3	Synbiotic 4	Antibiotic <sup>1</sup>
<b>ESBL <i>E.coli</i> 13P5</b>	13.67 ± 0.58 <sup>a</sup>	19.67 ± 0.29 <sup>b</sup>	19.50 ± 0.71 <sup>b</sup>	19.17 ± 0.29 <sup>b</sup>	NI
<b>ESBL <i>E.coli</i> 25051</b>	14.17 ± 0.76 <sup>a</sup>	19.67 ± 0.58 <sup>c</sup>	19.83 ± 0.76 <sup>c</sup>	16.83 ± 0.29 <sup>b</sup>	NI
<b>MDR <i>E.coli</i> ATCC2471</b>	15.33 ± 0.58 <sup>a</sup>	18.50 ± 0.50 <sup>b</sup>	20.33 ± 0.58 <sup>c</sup>	18.33 ± 1.15 <sup>bc</sup>	NI
<b>MDR <i>Salm. Dub.</i> CCOS505</b>	17.33 ± 0.58 <sup>a</sup>	19.67 ± 0.29 <sup>b</sup>	19.83 ± 0.29 <sup>b</sup>	19.67 ± 0.58 <sup>b</sup>	41.00 ± 1.41 <sup>c</sup>
<b><i>E.coli</i> ETEC 10674</b>	20.00 ± 0.00 <sup>c</sup>	17.67 ± 0.58 <sup>a</sup>	19.17 ± 0.76 <sup>bc</sup>	18.67 ± 0.58 <sup>ab</sup>	36.00 ± 1.00 <sup>d</sup>
<b><i>E.coli</i> 0157 10974</b>	19.67 ± 0.58 <sup>a</sup>	18.50 ± 0.50 <sup>a</sup>	18.67 ± 0.58 <sup>a</sup>	18.33 ± 0.29 <sup>a</sup>	35.83 ± 1.26 <sup>b</sup>
<b><i>E.coli</i> 0157 17076</b>	18.33 ± 0.58 <sup>a</sup>	18.33 ± 0.58 <sup>a</sup>	21.00 ± 1.00 <sup>b</sup>	19.00 ± 0.50 <sup>a</sup>	35.50 ± 0.87 <sup>c</sup>
<b><i>Salm. Ent.</i> 12694</b>	18.83 ± 1.04 <sup>a</sup>	19.17 ± 0.29 <sup>a</sup>	19.00 ± 0.50 <sup>a</sup>	19.00 ± 0.00 <sup>a</sup>	39.25 ± 0.35 <sup>b</sup>

**Table 1.** Zone of inhibition analysis (mm). Analysis based on average and standard deviation of three biological replicates (n = 3). Antibiotic control included per plate (ampicillin 1mgmL<sup>-1</sup>). Negative control included per plate (0mm). Means that do not share a letter are significantly different per bacteria species (spp.) ( $p \leq 0.05$ , Tukey's pairwise comparison, ANOVA).

<sup>1</sup>NI; No inhibition due to phenotypic resistance profile.

Abbreviations: ESBL; Extended-spectrum beta-lactamase; *E.coli*; *Escherichia coli*, MDR; Multidrug resistant, *Salm.*; *Salmonella*, *Salm. Dub.*; *Salmonella* Dublin, *E.coli* ETEC; Enterotoxigenic *Escherichia coli*, *Salm. Ent.*; *Salmonella* Enteritidis