

## **Bile salt deconjugation and cholesterol removal from media by *Lactobacillus* strains used as probiotics in chickens**

### **Abstract**

**BACKGROUND:** Bile salt deconjugation by *Lactobacillus* strains is often closely linked to bile tolerance and survival of the strains in the gut and lowering of cholesterol in the host. The present study investigated the deconjugation of bile salts and removal of cholesterol by 12 *Lactobacillus* strains in vitro. The 12 strains were previously isolated from the gastrointestinal tract of chickens. **RESULTS:** The 12 *Lactobacillus* strains could deconjugate sodium glycocholate (GCA, 16.87-100%) and sodium taurocholate (TCA, 1.69-57.43%) bile salts to varying degrees, with all strains except *L. salivarius* I 24 having a higher affinity for GCA. The 12 *Lactobacillus* strains also showed significant ( $P < 0.05$ ) differences in their ability to remove cholesterol from the growth medium (26.74-85.41%). Significant ( $P < 0.05$ ) correlations were observed between cholesterol removal and deconjugation of TCA ( $r = 0.83$ ) among the *L. reuteri* strains (C1, C10 and C16) and between cholesterol removal and deconjugation of TCA ( $r = 0.38$ ) and GCA ( $r = 0.70$ ) among the *L. brevis* strains (I 12, I 23, I 25, I 211 and I 218). In contrast, although *L. gallinarum* I 16 and I 26 and *L. panis* C 17 showed high deconjugating activity, there was no correlation between cholesterol removal and deconjugation of bile salts in these strains. **CONCLUSION:** The results showed that the 12 *Lactobacillus* strains were able to deconjugate bile salts and remove cholesterol in vitro, but not all strains with high deconjugating activity removed cholesterol effectively. © 2009 Society of Chemical Industry.