

## Colonization of intestinal mucosa and barrier effect of *Lactobacillus brevis* 16GAL

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### Abstract

*Lactobacillus brevis* 16GAL strain has been isolated from wheat epiphyte microbiota, characterized and identified by means of API 50CHL microtest systems. By the qualitative method, the specificity of probiotic strain adhesion to eukariote cells has been proved, using as underlayer – the *HeLa*.stabilized cellular line. Its competitiveness for adherence sites has been compared to different pathogen species: *E. coli*, *Listeria* sp., *Staphylococcus* sp., *Salmonella* sp. It was elaborated an *in vivo* experimental design to study the protective role of the *Lb. brevis* 16GAL pure culture on the intestinal microbiota against infection with *Salmonella enterica* serovar. *enteridis*.

**Key words:** *Lactobacillus brevis* 16GAL, adherence pattern, *HeLa* cells, barrier effect, intestinal mucous.

### Résumé

La souche *Lactobacillus brevis* 16 GAL a été isolé du microbiote épiphyte du blé, caractérisé et identifié à l'aide des systèmes microtest API 500CHL. Par la méthode qualitative, on a démontré la spécificité de l'adhésion du souche probiotique à des cellules eucaryotes, utilisant comme sous-couche – la ligne cellulaire établie *HeLa*. On a comparé la compétitivité de celle-ci pour les situs d'adhésion par rapport à des différentes espèces pathogènes : *E coli*, *Listeria* sp., *Staphylococcus* sp., *Salmonella* sp. On a élaboré un modèle expérimental *in vivo* pour étudier le rôle prophylactique de la culture pure de *Lb.brevis* 16 GAL sur le microbiote intestinal envers l'infection avec *Salmonella enterica* serovar. *enteridis*.

**Mots clé :** *Lactobacillus brevis* 16 GAL, adhérence, cellules *HeLa*, effet de barrière muqueuse intestinale.

### Rezumat

Tulpina *Lactobacillus brevis* 16GAL a fost izolata din microbiota epifita a graului, caracterizata si identificata cu ajutorul sistemelor microtest API 50CHL. Prin metoda calitativa, s-a demonstrat specificitatea adeziunii tulpinii probiotice la celule eucariote, utilizand ca substrat - linia celulara stabilizata *HeLa*. S-a comparat competitivitatea acestora pentru situsurile de aderare, fata de diferite specii patogene: *E. coli*, *Listeria* sp., *Staphylococcus* sp., *Salmonella* sp. S-a elaborat un model experimental *in vivo* pentru a studia rolul profilactic al culturii pure de *Lb. brevis* 16GAL asupra microbiotei intestinale fata de infectia cu *Salmonella enterica* serovar. *enteridis*.

**Cuvinte cheie:** *Lactobacillus brevis* 16GAL, aderență, celule *HeLa*, efect de barieră, mucoasa intestinală.

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