

“ Natural soluble extract as bacterial anti-biofilm agent to treat mastitis in dairy cows

THE INVENTION

Wheat bran extract (WB) exhibits anti-biofilm activity, inhibiting bacterial biofilm formation and destroying the biofilm previously formed by *S. aureus* in dairy cows suffering from mastitis. We are seeking a company partner to commercialize this licensing opportunity

Innovative aspects and advantages

- > WB at 0.5% showed anti-biofilm activity, inhibiting biofilm formation (80-90%) and removing the biofilm (ca 90%) in *in vitro* assays
- > The WB fraction >300 kDa has a similar anti-biofilm activity in *in vitro* assays
- > WB combined with current antibiotics will prevent and treat mastitis in dairy cows
- > New potential use of a by-product coming from the flour industry

IP Rights

Priority European patent application, 15th November 2013

Scientific Team

Susana Martín leads the scientific team specialized in feed ingredients for animal nutrition and health belonging to the Research group of Animal Nutrition, Handling & Welfare of the Veterinary faculty of the UAB

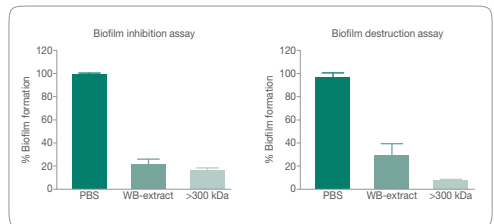
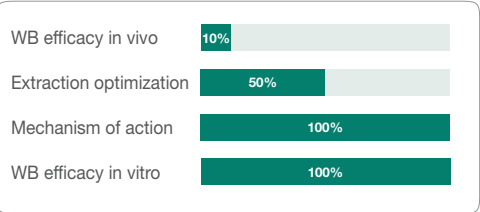
Summary

The estimated economic value of losses caused by mastitis reaches 10% of production costs reaching a figure of more than € 25 billion/year worldwide in the dairy cattle industry. The problem is the mastitis recurrences due to the formation of bacterial biofilm formation that current treatment with antibiotics administered via intramammary does not solve.

This soluble wheat bran extract has shown a biofilm formation inhibition of 80-90% and ca 90% of destruction capacity of the biofilm formed in the cow mastitis strain of *S.aureus* (see figure 1).

The mechanism of action proposed is the capacity of WB to interfere in bacterial Quorum Sensing (QS). This was demonstrated by the acyl-homoserine lactones (AHL) test. Thus, it shows that WB decreases AHL activity. Results has been published in *Environmental Microbiology* (2014) 16(5), 1346-1353. WB combined with current antibiotics might be used to prevent and treat mastitis and their recurrences by inhibiting bacteria infection and inhibiting biofilm formation.

State of Development



► Fig. 1 Anti-biofilm assays



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