inflammatory action of bacteria, and secreted products therefrom, and US 7052896 which relates to anti-inflammatory and anti-allergic properties of peptides produced by Lactobacillus rhamnosus species.

US 6,506,389 describes a protein obtainable from a non pathogenic microorganism, said protein having mucosa binding activity and a molecular weight of 20-40 kD, preferably 20-30 kD or an equivalent polypeptide thereof. The gist of the disclosure is to provide a screening method for identifying proteins and polypeptides capable of specifically binding mucosa.

None of the prior art references presents a suitably straightforward fermentation and harvesting method so as to obtain from LGG a non-viable probiotic material that supports anti-allergic activity.

Further, the harvesting of secreted bacterial products brings about a problem that the culture media cannot easily be deprived of undesired components. This specifically relates to nutritional products for relatively vulnerable subjects, such as infant formula or clinical nutrition. This problem is not incurred if specific components from a culture supernatant are first isolated, purified, and then applied in a nutritional product. However, it is desired to make use of a more complete cultural supernatant. This would serve to provide , a composition better reflecting the natural action of the probiotic (i.e. LGG). Currently, however, one cannot just use the culture supernatant itself as a basis for non-viable probiotic materials to be specifically used in infant formula and the like. It is thus moreover desired to provide a method to resolve this.

Summary

In order to better address one or more of the foregoing desires, in the disclosure, in one aspect, there is provided use of a composition comprising a proteinaceous mixture, wherein the composition is obtained from a culture supernatant in a late-exponential phase of Lactobacillus rhamnosus Goldin Gorbach (LGG) batch- cultivation process, wherein the culture supernatant comprises molecular weight constituents above 6kDa, in the manufacture of a medicament for use in the treatment or prevention of allergic diseases.

In one embodiment, there is provided a composition comprising a proteinaceous mixture, said compostion being obtainable from a culture supernatant in a late-exponential phase of an LGG batch-cultivation process, for use in the treatment or prevention of allergic diseases.

In another embodiment, there is provided a method of harvesting from an LGG culture medium a composition having anti-allergic activity, the method comprising growing LGG in a suitable culture medium, determining the late-exponential phase of LGG population growth, and separating the culture supernatant in said late-exponential phase from the bacterial culture.

In further embodiments, there is provided a dietetic product comprising a non-viable probiotic composition obtainable from a culture supernatant in a late-exponential phase of an LGG batch-cultivation process, as well as the use of the foregoing composition as an additive in a nutritional product.

In yet another embodiment, there is provided a method of treatment or prevention of an allergic disease in a subject, the method comprising the administration to said subject of an effective amount of a composition comprising a non-viable probiotic material obtainable from a culture supernatant in a late-exponential phase of an LGG batch-cultivation process.

Brief description of the drawings

Fig. 1 shows a graph representing the increase of the LGG population, with time, upon cultivation; Herein Fig. 1a depicts this with reference to optical density (0D600) as well as pH change of the culture media and Fig. 1b presents the bacterial counts determined by plating techniques.

Fig. 2 shows the production of cytokine IL-10 for the different phases MJ1, MJ2, MJ3) of LGG culture harvests;

Fig.3 depicts the timeline of the *in vivo* ovalbumin (OVA) sensitation; neonatal mice model used in testing the composition of the invention;