

BioCare Probiotics

A 'state of
the art' range of
probiotics

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Within the past ten years, BioCare has become Europe's brand leader in probiotic supplements. Apart from the numerous clinical trials that have proved the efficacy and potency of the range, BioCare has become the first choice of probiotics amongst healthcare professionals - a sure sign of their effectiveness.



Probiotic Organisms - The Need to Supplement

BioCare produces a range of high quality probiotic supplements, including:

BioAcidophilus - the 'gold standard' for probiotics. It contains 4 billion viable cells of *Lactobacillus acidophilus* and *Bifidobacteria bifidum* in a base of FOS (fructooligosaccharides), a highly effective growth medium for these probiotic bacteria.

Replete - this unique seven-day intensive probiotic pack is the most potent probiotic combination on the UK market. Replete contains 10 billion *L. acidophilus*, 10 billion *B. bifidum* and 10 billion *L. bulgaricus*, in a base of FOS and natural apricot, giving Replete a pleasant sweet taste.

Bifidobacterium infantis (INT BI) - a probiotic supplement designed specifically for the needs of infants. At birth the gastrointestinal tract is sterile, and as such is open to colonisation by many microorganisms present in the environment. *B. infantis* is the dominant probiotic bacteria in breast-fed infants, which helps protect the infant from potentially pathogenic microorganisms.



Strawberry or Banana Acidophilus - these two products are ideally suited to children, the elderly or convalescents. They are completely natural, sugar free and free from artificial colours, flavours or additives.

Each of BioCare's carefully selected probiotic supplements contains specific strains of *Lactobacillus acidophilus* and *Bifidobacteria bifidum*, two of the most important bacteria found in the finely balanced ecosystem of the human gastrointestinal (GI) tract.

The BioCare Probiotic Organisms

The role of probiotic supplements in human physiology is both varied and of fundamental importance. However, in practice the full benefits of these products are not always achieved, partly because the microorganisms do not reach the GI tract in either sufficient numbers or with sufficient activity to be effective. Moreover, many bacteria used as probiotic organisms are poor colonizers of the GI tract, quickly passing straight through and thereby eliciting only a transitory effect. Hence, for a probiotic to be effective, there are four important criteria that must be delivered:

- Proven product shelf stability, ensuring that the probiotic organisms reach the user at the 'correct' potency.
- Ability of the selected bacteria to survive gastric juices and stomach acidity
- Ability of the bacteria to attach to human epithelial tissue of the GI tract
- Proven in clinical trials

BioCare probiotics exhibit all these characteristics to deliver the highest number of viable organisms, at their maximum potency, to the correct target sites in the intestine.



Delivering a product with shelf stability & quality assurance

Lactobacillus acidophilus and Bifidobacterium bifidum are fragile organisms, sensitive to both temperature and moisture. As temperature increases from 4°C, there is an almost exponential drop in viable (living) numbers with time, which is exacerbated by the presence of moisture. This is why many probiotic supplements containing L. acidophilus and Bifidobacteria have failed in independent studies to deliver label specifications of viable numbers to the customer.

A combination of appropriate packaging and storage conditions, alongside independent analysis of each batch ensures that all BioCare probiotic products reach the customer at levels in excess of that specified on the label

Fig 1 clearly demonstrates that optimised technical parameters, together with the addition of microbial overage at time of manufacture ensures that all BioCare probiotics have:

- Virtually indefinite shelf life if kept frozen
- Full 12-18 months shelf life if kept refrigerated
- Over 3 months shelf life at room temperature
-And still remain above the label specification!

Fig 1. Shelf life study on BioCare organisms

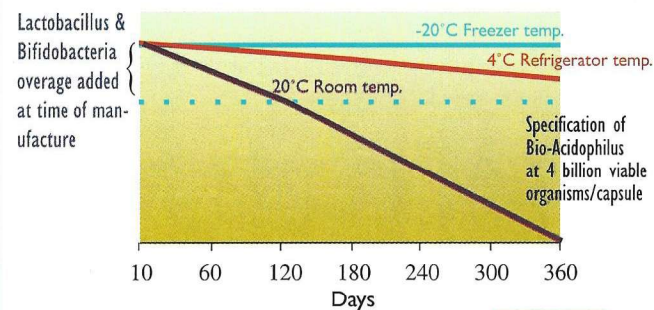


fig 1

Highest survival through the stomach

The pH of the empty stomach is very acidic - between 1.5 and 1.9. This pH is raised to between 3.8 and 4.3 in the full stomach, due to the buffering action of food. The aggressive nature of the stomach acts as an excellent barrier to invasion by potentially pathogenic bacteria. For probiotics to be effective, they must survive in high numbers under the same environmental stresses as would severely inhibit or eradicate other bacteria.

The BioCare organisms were compared with other probiotic strains for their ability to survive passage through the stomach (Fig 2). With over 90% survival in the full stomach environment and over 50% survival in the harshest environment of the empty stomach, the BioCare organisms proved particularly robust and well adapted to the human stomach environment. In contrast, the other probiotic organisms tested were very sensitive to the gastric conditions of the human host.

This study also demonstrates that probiotics should be taken with a meal to ensure maximum survival.

This quality assurance promise has resulted in BioCare being awarded top placing in two recent independent European probiotic surveys, analysing product specification and value for money.

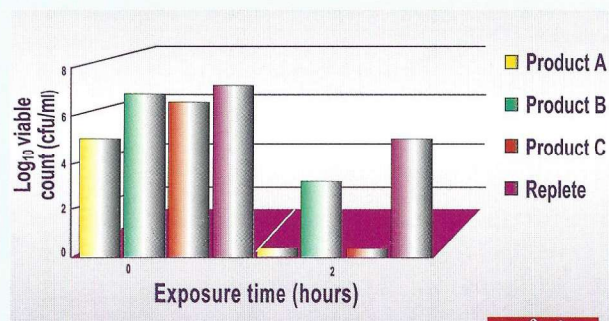


fig 2

Proven attachment to human epithelial cells

In the small intestine the transit time is rapid, relative to the growth rate of probiotic bacteria, so if sufficient bacteria are unable to attach to the epithelial surface of the small intestine, they will be washed through. Therefore, it is crucial that the strains used for probiotic supplements are capable of efficient epithelial cell attachment. The BioCare strain of Lactobacillus acidophilus was selected for its excellent capability to attach to epithelial tissue as the study shown in Figure 3 demonstrates.

Fig. 3

In-vitro attachment of Biocare strain of L. acidophilus to buccal epithelial cells in 11 human volunteers

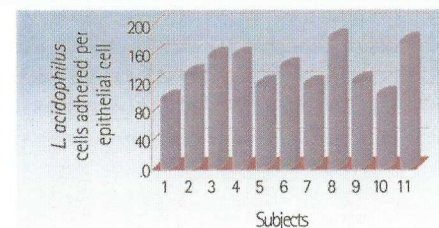


fig 3

The key features of the BioCare strain shown are:

- High attachment efficiency
- Similar attachment across all measured individuals

BioCare's probiotics - selected to deliver maximum functionality in the human GI tract

• Human strains - therefore effective for human healthcare

• Proven by human double blind placebo controlled clinical trials

• High potency - guaranteed quality by independent potency analysis with each batch

• Unique and proven synergistic interactions with other supplements

