Reduction of depressive symptoms

Mental disorders, depression in particular, are becoming a global epidemic. Worldwide, more than 350 million people of all ages suffer from depression. A variety of lifestyle and environmental changes may be responsible for the increased prevalence of mental disorders. One specific area of interest is the relationship between the intestinal microbiota and mental health (figure 1).

The gut microbiota is essential for human health by protecting against pathogens and digesting food. However, the influence of the microbiota extends beyond the gastrointestinal (GI) tract, playing an important role in the bidirectional communication between the GI tract and the central nervous system (CNS). This connection is also called the gut-brain axis. The high co-morbidity between psychiatric disorders with GI conditions such as irritable bowel syndrome and inflammatory bowel disease supports the evidence of the existence of this axis. The intestinal barrier appears to play an important role in the communication between the gut and the brain. Impaired barrier function negatively influences hormones, immune cells and bacterial metabolites that affect the gut-brain axis. Research has shown that probiotics can positively influence the gut microbiota and intestinal barrier function. This raises the question whether probiotics can influence brain functioning as well. Recent studies have demonstrated the ability of probiotics to influence the gut-brain axis and by this brain functioning.

Ecologic® BARRIER

Ecologic® BARRIER is a multispecies probiotic formulation. The bacterial strains of Ecologic® BARRIER have been selected for their capacity to strengthen the intestinal barrier and reduce low grade inflammation (figure 2).

For this, the strains were screened on their capacity to:
- improve barrier function in vitro
- inhibit mast cell activation
- stimulate IL-10 production
- break down LPS.

Figure 1: The microbiota-gut-brain axis

Figure 2: Ecologic® BARRIER is a multispecies probiotic developed to strengthen the intestinal barrier function and decrease inflammation.

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### Clinical evidence

Two studies with Ecologic® BARRIER have been performed related to depression both indicating a positive effect. In the first study, performed at Aarhus University, Denmark, healthy rats were given Ecologic® BARRIER or placebo for 8 weeks. After this period the animals performed a forced swim test, a typical screening for depressive-like behavior in rodents. The more depressed rats are, the less they move.

The group of animals that consumed Ecologic® BARRIER moved significantly more compared to the placebo group (figure 3). In the second study, a randomized, placebo-controlled human trial performed at Leiden University, the Netherlands, 40 students were given Ecologic® BARRIER or placebo for 4 weeks. Before and after the intervention a validated questionnaire, the Leiden Index of Depression Sensitivity that measures cognitive reactivity in response to sad mood, was filled out. At baseline there were no differences between the two groups, but after 4 weeks the sensitivity to depression score was significantly decreased in the Ecologic® BARRIER group compared to the placebo group (figure 4). The most pronounced decreases were found in the categories aggression and rumination.

These positive results have led to a follow-up study in an elderly population. Multiple studies are currently planned or ongoing that further investigate the effect of Ecologic® BARRIER on a variety of mental disorders in diverse populations. The results indicate that supplementation with Ecologic® BARRIER can influence the gut-brain axis and contribute to alleviating mental distress.

### References


### Safety and quality profile

All probiotic strains in Ecologic® BARRIER have the QPS (Qualified Presumption of Safety) status. Winclove is a NSF International Certified GMP Facility for manufacturing dietary supplements. Winclove’s food safety management system is ISO 22000:2005 certified for the development and production of pre- and probiotics.

### Product Details

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<thead>
<tr>
<th>Indication</th>
<th>Reduction of depressive symptoms.</th>
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<tbody>
<tr>
<td>Quality</td>
<td>Bacterial strains combined with a unique Winclove Technique that ensures biological activity, gastro-intestinal survival and stability of the probiotic strains.</td>
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<tr>
<td>Colony forming units (CFU)</td>
<td>2.5 x 10^11 CFU/gram.</td>
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<td>Dosage</td>
<td>2 grams, once daily.</td>
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<td>Treatment period</td>
<td>For as long as desired/needed.</td>
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<td>Application form</td>
<td>Powder (delivered in bulk, sachets or capsules).</td>
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<tr>
<td>Stability</td>
<td>Stable at room temperature.</td>
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<tr>
<td>Marketing</td>
<td>Exclusivity, on a co-branding basis. We are searching for partners with their own brand selling medically endorsed products.</td>
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![Figure 3: Seconds of immobility during the Forced Swim Test. The more depressed rats are, the less they move. *Significant decrease.](image1)

![Figure 4: Scores on the Leiden Index of Depression Sensitivity (LEIDS-r) before and after 4 weeks use of Ecologic® BARRIER. *Significant decrease, P<0.001.](image2)