SCIENCE REPORT

EpiCor® Mitigates Physiological and Biochemical Effects in "Leaky Gut" Model

Summary: The results from this trial suggest EpiCor fermentate helps reduce the likelihood of damage to the gut lining in a heat stress rodent model that simulates effects associated with leaky gut. The stressed rats fed EpiCor showed a reduction of serum LPS endotoxins, a reduction of eryptosis, and a decrease in white blood cell count as compared to the control rats. The statistically significant physiological and biochemical results from this model indicate that EpiCor may maintain gut health in a way that helps reduce the physical damage and biochemical changes associated with leaky gut.

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Introduction

Leaky gut syndrome is a hypothetical, medically unrecognized condition thought to affect the lining of the intestines (gut morphology). Intestinal permeability results from leakage through the gut lining into the blood. In a normally functioning gut tight junctions prevent such leakage. In leaky gut intestinal permeability allows certain harmful substances like toxins to leak into the bloodstream.

Heat stress is known to adversely affect gut morphology, thus to simulate leaky gut syndrome. The objective of this research was to demonstrate that EpiCor fermentate maintains gut health in a challenge involving exposing animals to heat stress, thus inducing gastric leakage.

Method

Adult rats were split into two equal groups, EpiCor and control (16 rats per group; 32 total). For 14 consecutive days, the EpiCor group was gavaged with 7 mg/kg of EpiCor in phosphate buffered saline (PBS), while the control group was gavaged with only PBS daily. On the last day of the trial, half of each group, eight in the EpiCor group and eight in the control group, were then heat stressed at 45°C (113°F) for 25 minutes. After a 4-hour cool down period, all rats were euthanized and samples taken and treated appropriately for the required analyses.

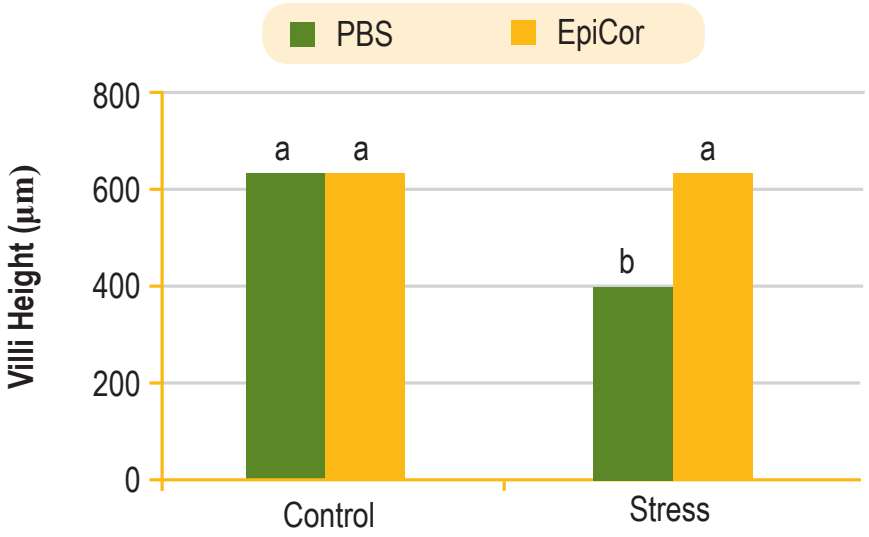
Ethics Statement

All animal procedures were approved by the Auburn University Institutional Animal Care and Use Committee. The study was performed in accordance with the recommendations in the Guide for the Care and Use of Laboratory Animals of the National Institutes of Health.

Results

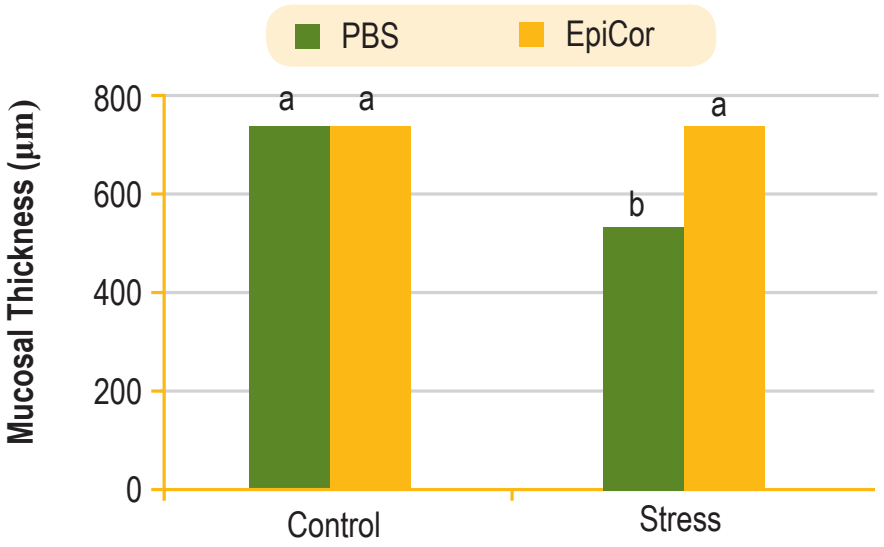
EpiCor-treated heat-stressed rats showed no adverse changes in gut morphology, whereas heat-stressed control rats showed statistically significant decreases in both villus height (Figure 1) and total mucosal thickness (Figure 2). Thus, EpiCor treatment maintained gut integrity under stress conditions that caused damage to the control group.

Figure 1:



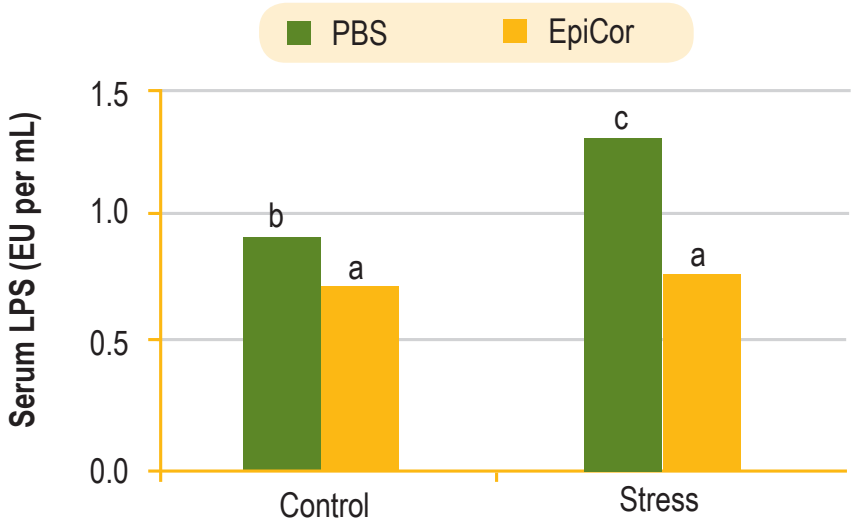
Claims: The labeling substantiation and decision making of all claims for your products are your responsibilities. We recommend you consult regulatory and legal advisors familiar with all applicable laws rules and regulations prior to making labeling and claims decisions.

Figure 2:



EpiCor-treated heat-stressed rats showed no increase in LPS (lipopolysaccharides, which are bacterial endotoxins) levels in the blood, whereas heat-stressed control rats showed a statistically significant increase of LPS. Interestingly, control rats fed EpiCor (no heat stress) also showed statistically significantly lower levels of LPS than the non-stressed controls, possibly due to detrimental impacts from gavaging. Thus, EpiCor treatment showed improved gut integrity (as measured by lower blood levels of LPS) compared to both heat-stressed and non-heat stressed controls (Figure 3).

Figure 3:



Heat-stressed control rats showed statistically significant eryptosis (red blood cell damage leading to erythrocyte death), accompanied by a statistically significant increase in white blood cell count. This was absent in the EpiCor treated heat-stressed rats.

Conclusion

Many stressors impact both the rat and human immune systems, and they can cause inflammation and damage to the gut lining. Such negative effects of stress can lead to leakage of toxins into the blood stream that can trigger an immune response leading to gastrointestinal problems. The physiological and biochemical results of this research suggest that regular consumption of EpiCor is capable of mitigating certain damage to the surface layer of the gut and associated toxin leakage into the blood stream. Further research is necessary, but these results suggest that EpiCor may possibly reduce gastrointestinal problems associated with excess intestinal permeability found in leaky gut syndrome.

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