

Shahid Virpatni Laxmi Mahavidyalaya, Titave
Department of Home Science (FSN)
File No.22 Publications, Awards and Recognition

I) Research Publications

Year	International Journal	National Journal	International Conference / Seminar	National Conference / Seminar	Book chapter	Proceedings	Any other	Total
2022-23	01	--	--		--	--	--	02
2022-23	01	--	--		--	--	--	--
Total	--	--	--		--	--	--	02

I) List of Research Publications

Sr. No.	Year of Publication	Title of the Publication/DOI, Impact factor	Name of Co-author if any	Name of Journal having ISBN/ISSN number
Faculty:- Dr. Madhuri Sangar				
1	2022-23	Roasted garlic Protects against leaky gut syndrome in dextran sodium sulfateinduced colitis mice.(Online date of publication : 09/02/2017, DOI: https://doi.org/10.1007/s10068-022-01116-w .) Impact factor: 3.231	Dr. Divya Sharma	Food Science and Biotechnology
2	2022-23	Effcet of Fermented Onion on Gut health in Dextran Sodium Sulfate (DSS) – Induced Inflammmtory Boewl Disease (IBD) Rats . DOI: https://doi.org/10.3390/app13031590 Impact factor:2.7	Sangpreecha Neeracha	Applied science MDPI

Article

Effects of Fermented Onion on Gut Health in Dextran Sodium Sulfate (DSS)-Induced Inflammatory Bowel Disease (IBD) Rats

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Featured Application: This paper is the first report to compare the effects of fresh and fermented onions on gut health using rats. These results could be useful for developing healthy foods using onions.

Abstract: Onion is a well-known health-beneficial vegetable. However, fresh onion is high in FODMAPs (fermentable oligosaccharides, disaccharides, monosaccharides, and polyols) which may be problematic for IBD. Fermentation of onion may help to lower FODMAP problems and increase the availability of bioactive compounds, especially quercetin. We investigated the effect of fermented onion on DSS-induced IBD in rats. Rats were divided into six groups and treated orally with saline as a control and negative control (DSS), probiotics, low and high doses of fermented onion, or fresh onion extract for 3 weeks. After two weeks, rats were given drinking water containing 0.2% DSS for 5 days, except for the control followed by two days of regular water. The colonic histomorphology, immunity, oxidative stress, short-chain fatty acids, and biochemical analysis showed improved IBD conditions in the fermented onion groups. In contrast, the consumption of fresh onion appeared to exacerbate the IBD condition. These results suggest that the consumption of a high dose of fermented onion can ameliorate IBD symptoms.

Keywords: inflammatory bowel disease; dextran sodium sulfate; fermented onion; onion

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updates

Citation: Sangpreecha, N.; Chanmuang, S.; Park, K.-H.; Sangar, M.; Sharma, D.; Song, D.; Park, Y.-J.; Sung, H.-M.; Promyo, K.; Ham, K.-S. Effects of Fermented Onion on Gut Health in Dextran Sodium Sulfate (DSS)-Induced Inflammatory Bowel Disease (IBD) Rats. *Appl. Sci.* **2023**, *13*, 1590. <https://doi.org/10.3390/app13031590>

Academic Editors: Luca Mazzoni, Franco Capocasa and Maria Teresa Ariza Fernández

Received: 23 December 2022

Revised: 19 January 2023

Accepted: 23 January 2023

Published: 26 January 2023



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1. Introduction

Inflammatory bowel disease (IBD) is a chronic inflammation of the digestive tract. Its incidence is increasing worldwide at an unprecedented rate [1]. IBD can be caused by many factors. In particular, oxidative stress causes protein, lipid, and DNA damage, which leads to the pathogenesis of intestinal disorders [2]. The most important factor of IBD is intestinal homeostasis, which can occur through the equilibrium between the immune system and intestinal microbiota. Controlling the invasion of harmful microorganisms is one of the processes for maintaining this balance. Therefore, to prevent the adhesion and invasion of harmful microorganisms, the intestinal mucosa is furnished with protective mechanisms including the mucus layer, a building complex, and an effective mucosal barrier, which is formed by mucins produced by intestinal goblet cells [3]. Currently, therapeutic drugs for IBD such as steroids, immunomodulators, and antibodies are now available. However, most of them have limitations due to their side effects including increased risk of infection, pulmonary toxicity, congestive heart failure, congenital disabilities, myelosuppression, liver toxicity, pancreatitis, and malignancy [4]. Since eating habits play an important role in

