

Saccharomyces boulardii CNCM I-745: An Efficient Yeast Probiotic with Unique Properties

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Abstract

Objective: Probiotics have been associated with improved health and well-being. Both bacterial and yeast probiotics can produce anti-carcinogenic, anti-oxidant, and anti-mutagenic effects that induce protection against various bacterial diseases such as diarrhoea and respiratory tract infections. Among yeasts, *Saccharomyces* genus is found to be effective in improving human health. *Saccharomyces boulardii* CNCM I-745 is classified as a probiotic with unique properties such as variability of pH over a wide range, inability to obtain antibiotic resistance genes, and the ability to attain a steady state rapidly, providing it an advantage over bacterial probiotics. It plays a significant role in preventing antibiotic-associated diarrhoea and paediatric acute gastroenteritis as compared to bacterial probiotics. Prophylactic use of *S. boulardii* CNCM I-745 not only showed a significant reduction in the risk of AAD as compared to controls but also restored the gut microbiota diversity. *Saccharomyces boulardii* CNCM I-745 was also found to be superior to *Lactobacillus rhamnosus* GG and four strains of *Bacillus clausii* in reducing the duration of diarrhoea and hospital stay in Indian children with PAGE. *Saccharomyces boulardii* CNCM I-745 is also recommended by several international guidelines for the management of acute diarrhoea. It is considered a safe probiotic for the prevention of gastrointestinal disorders and it is suitable for use in both children and adults.

Key words: Antibiotic-associated diarrhoea, Gastrointestinal disorders, Paediatric acute gastroenteritis, *Saccharomyces boulardii* CNCM I-745, Yeast Probiotics

INTRODUCTION

The gut microbiome is considered to play a major role in host physiology, metabolism, and nutrition. Microbial dysbiosis, or any alteration in the gut microbiota, is associated with several gastrointestinal (GI) conditions, including cancer, obesity, and a variety of bowel disorders. Microbial dysbiosis can be caused by several factors such as dietary changes, bacterial infections, and excessive use of antibiotics.^[1] One of the most effective methods to restore

this imbalance is to use probiotics. The World Health Organization defines probiotics as “live microorganisms that, when administered in adequate amounts, confer a health benefit on the host.”^[2,3] There has been a lot of research on probiotics of bacterial origin; however, limited data are available on probiotics of yeast origin. One of the rising concerns for bacterial probiotics is their characteristic of transferring resistant genes to pathogenic bacteria, which is overcome by yeast probiotics being naturally resistant to antibacterial agents.^[1]

YEAST PROBIOTICS

Probiotics derived from their native yeast strain provide a number of additional advantages, including their capacity to combat pathogens, survive in acidic and bile environments, adhere to human intestinal cells, produce antimicrobial compounds and diverse metabolites, and exhibit antibiotic

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resistance.^[4] An ideal probiotic should have the ability to actively combat and inhibit specific pathogens, detoxify their produced toxins, enhance the resilience of the host's cells, hinder pathogen attachment to host cells, promote the restoration of normal flora balance, and modulate the immune response to maintain equilibrium.^[5]

ADVANTAGES OF YEAST OVER BACTERIAL PROBIOTICS

Yeasts, due to their larger size (yeast: 10 mm vs. bacteria: 1 mm), create a steric hindrance against pathogenic bacteria.^[5] They possess numerous immunomodulatory components such as the outer layer of the cell wall which contains mannoproteins that bind to dendritic cell-specific intercellular adhesion molecule-3-grabbing non-integrin, toll-like receptor 4, and other receptors. The middle layer is rich in β -glucans that bind to Dectin-1 and toll-like receptors 2 and 6, while the inner wall consists of chitin that binds to the mannose receptor. Yeast can inhabit various locations in the GI tract, including the stomach and colon, indicating their ability to withstand pH variations and stress.^[5,6]

SACCHAROMYCES BOULARDII CNCM I-745: A PROMISING PROBIOTIC

S. boulardii CNCM I-745, a yeast strain employed as a probiotic, has a variety of unique characteristics. It exhibits several anti-pathogenic properties, can modulate the immune system locally and systemically, and offers a variety of beneficial characteristics. It has demonstrated remarkable resilience in its lyophilized form, effectively surviving in the harsh conditions of gastric acid and bile. Unlike many other yeasts, it maintains viability at the human body's temperature of 37°C, making it an ideal probiotic. Its ability to survive these challenges ensures that it reaches its target destination – the colon – where it can exert its beneficial effects.^[6]

Moreover, *S. boulardii* CNCM I-745 possesses inherent qualities that contribute to its efficacy in various conditions. It shows natural resistance to antibiotics and proteolysis, which are critical factors in maintaining its effectiveness in the GI environment. Despite the competitive nature of the intestinal tract, this yeast strain thrives and establishes stable concentrations within a remarkably short period, typically within three days of administration. Equally notable is its efficient clearance from the body within 3–5 days after discontinuation of administration, highlighting its transient yet impactful action.^[5,7]

S. BOULARDII CNCM I-745: MECHANISM OF ACTION

The gut microbiome fulfills multiple functions, including pathogen colonization prevention, epithelial barrier maintenance, and immune response modulation. *S. boulardii* CNCM I-745 exerts its effects through several distinct modes of action [Table 1].^[5]

Table 1: Mechanisms of action of *S. boulardii* CNCM I-745 in improving gut health^[5]

Mode of action	Description
Luminal action	Interference with pathogenic toxins and their attachment in the intestinal lumen Antitoxin effects against <i>Clostridioides difficile</i> toxins A and B, cholera toxin, and <i>Escherichia coli</i> lipopolysaccharides Interaction with normal microbiota, exhibiting antimicrobial activity and preservation of tight junctions and cellular physiology Re-establishment of short-chain fatty acid levels/ balance supports colonic function Increase in IgA levels that enhance mucosal immunity
Trophic action	Supports enzymatic activity promoting polyamines that aid enterocyte maturation Increased levels of disaccharidase beneficial in viral diarrhea
Mucosal-action-anti-inflammatory signaling effects	Acts as an immune regulator by decreasing the synthesis of inflammatory cytokines

ADVANTAGE OF S. BOULARDII CNCM I-745 AS A PROBIOTIC IN ANTIBIOTIC-ASSOCIATED DIARRHEA (AAD) AND PEDIATRIC ACUTE GASTROENTERITIS (PAGE)

Several clinical studies highlight the importance of *S. boulardii* CNCM I-745 in the management of AAD and PAGE.^[5]

- AAD

A meta-analysis comprising 10 randomized controlled trials by McFarland reported a significant therapeutic efficacy of *S. boulardii* CNCM I-745 in treating AAD (RR = 0.47, 95% CI: 0.35–0.63, $P < 0.001$).^[5,8] In another meta-analysis of 22 trials, the same researchers found that *S. boulardii* CNCM I-745 reduced AAD (pooled RR = 0.43, 95% CI: 0.32–0.60).^[5,9] In another trial by Jindal *et al.*, a significant reduction was observed in the incidence of diarrhea in patients receiving *S. boulardii* CNCM I-745 ($P < 0.001$).^[5,10] *S. boulardii* CNCM I-745 also reduced the risk of *C. difficile*-associated diarrhea, according to a systematic review and meta-analysis done by Szajewska and Kolodziej.^[5,11]

- PAGE

In a meta-analysis study of 5 RCTs by Padayachee *et al.*, *S. boulardii* CNCM I-745 significantly reduced the duration of diarrhea as compared to control and also exhibited a statistically significant effect on stool frequency on days 1, 2, 3, and 4 ($P = 0.001$). At day 7, all children had solid stools.^[5,12]

SAFETY PROFILE OF *S. BOULARDII* CNCM I-745

S. boulardii CNCM I-745 is a probiotic yeast known for its efficacy and safety profile in clinical settings.^[5] It has undergone approval as a medicinal treatment specifically for targeting diarrhea, underscoring its reliability in managing this condition caused by various factors.^[6] Clinical trials have not reported any side effects of *S. boulardii* and it is considered to be safe for use even in children suffering from acute diarrhea [Table 2].^[5]

CONCLUSION

The gut microbiome has a pivotal role in host health, influencing various physiological aspects such as metabolism and immunological function. While bacterial probiotics have been extensively studied, yeast probiotics remain relatively underexplored despite their notable advantages, which include a natural resistance to antibiotics, the ability to counteract pathogens, and the ability to withstand harsh GI conditions. Among yeast probiotics, *S. boulardii* CNCM I-745 stands out for its exceptional properties, including survival in the presence of gastric acid and bile,

resistance to antibiotics, and colonization in the colon. Its unique mechanisms of action include luminal, trophic, and mucosal-anti-inflammatory effects, contributing to gut health by interfering with pathogenic toxins, supporting intestinal barrier integrity, and modulating immune responses. It is one of the most effective probiotics against AAD in children. As compared to *L. rhamnosus* GG and some strains of *B. clausii*, *S. boulardii* CNCM I-745 exhibits a significant reduction in the mean duration of diarrhea in PAGE patients. It is a probiotic recommended by ESPGHAN and other global organizations for the prevention and treatment of diarrhea due to its proven safety and efficacy. *S. boulardii* CNCM I-745 is a preferred choice of probiotic for the management of AAD and PAGE due to its several advantages over bacterial probiotics.

ACKNOWLEDGMENT

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EXPERT OPINION

To strongly analyze the role and efficacy of yeast probiotic *S. boulardii* CNCM I-745, the opinions of 25 experts were gathered. Based on the expert opinion, *S. boulardii* CNCM I-745 is the preferred choice of probiotics and has been found effective and safe for the management of AAD and pediatric-associated gastroenteritis (PAGE).

Table 2: Global recommendations of *Saccharomyces boulardii* CNCM I-745 as a probiotic^[5]

Strain	Name of organization	Condition	Dosage	Quality of evidence
<i>Saccharomyces boulardii</i>	ESPGHAN (2022)	Acute gastroenteritis Prevention of AAD	250–750 mg/day ≥5 billion CFU per day	Low Moderate
	ESPGHAN (2020)	Acute gastroenteritis in children as an adjuvant treatment to oral rehydration therapy	250–750 mg/day	Low
	European Pediatric Association Expert Panel (2018)	Prevention of AAD, acute gastroenteritis (adjunct to the oral rehydration therapy), prevent <i>Clostridium difficile</i> -associated diarrhea	250–750 mg	-
	ESPGHAN (2016)	Prevention of <i>Clostridium difficile</i> -associated diarrhea in children AAD in adults (5×10 ⁹ CFU/capsule or 250 mg twice daily)		Low Level 1
<i>Saccharomyces boulardii</i> CNCM I-745	ESPGHAN (2023)	AAD Acute gastroenteritis	- -	Moderate Low
	World Gastroenterology Organization (2017)	Prevention of <i>Clostridium difficile</i> -associated diarrhea/or prevention of recurrence in adults	5×10 ⁹ CFU/capsule or 250 mg twice daily	Level 3
	Latin-American Experts (2015)	Prevention of AAD Prevention of AAD, prevention of traveler’s diarrhea	250–500 mg -	Level 1 Grade of evidence: 1b

AAD: Antibiotic-associated diarrhea

1. Which probiotic, bacterial or yeast, is more effective in managing AAD?

More than 90% of doctors recommended yeast probiotics for managing AAD, whereas only 9% recommended bacterial probiotics for the same purpose [Figure 1].

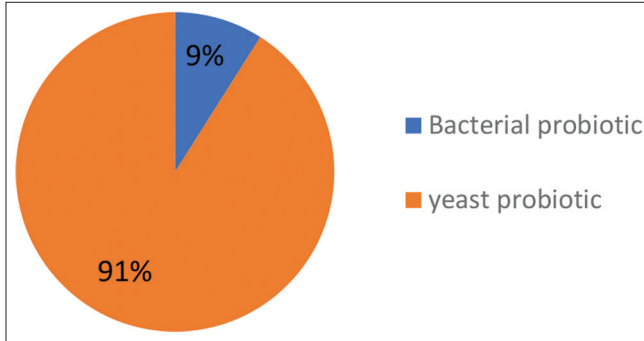


Figure 1: Expert opinion on the effectiveness of yeast probiotics in managing antibiotic-associated diarrhea

2. Which probiotic, bacterial or yeast, is more effective in managing PAGE?

Among all, 91% of doctors recommend the use of yeast probiotics for managing PAGE, whereas only 9% advocate for the use of bacterial probiotics for the equivalent therapeutic goal [Figure 2].

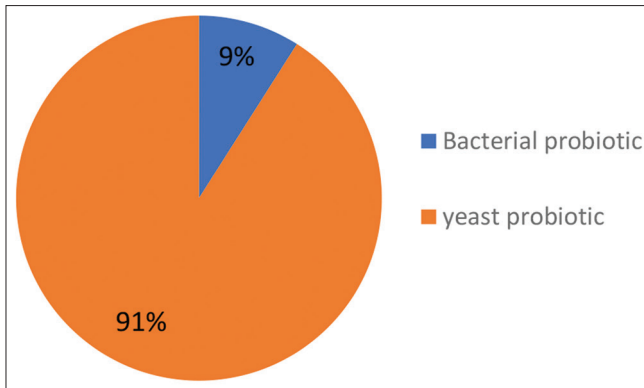


Figure 2: Expert opinion on the effectiveness of yeast probiotics in managing pediatric acute gastroenteritis

3. What is the effect of *S. boulardii* on the duration of diarrhea? Does it shorten or lengthen the duration?

Among the expert panelists, all the doctors (100%) agreed that *S. boulardii* shortens the duration of diarrhea.

4. Do you agree that *S. boulardii* CNCM I-745 is the preferred choice of probiotic for the management of AAD and pediatric-associated gastroenteritis (PAGE)?

All the expert panelists (100%) agreed that *S. boulardii* CNCM I-745 is the preferred choice of probiotic for the management of AAD and PAGE.

5. Are there any negative outcomes that you have noticed in the general population after the administration of *S. boulardii*?

An overwhelming 97% of doctors suggested that they did not observe any adverse effects within the general population with the use of *S. boulardii* [Figure 3].

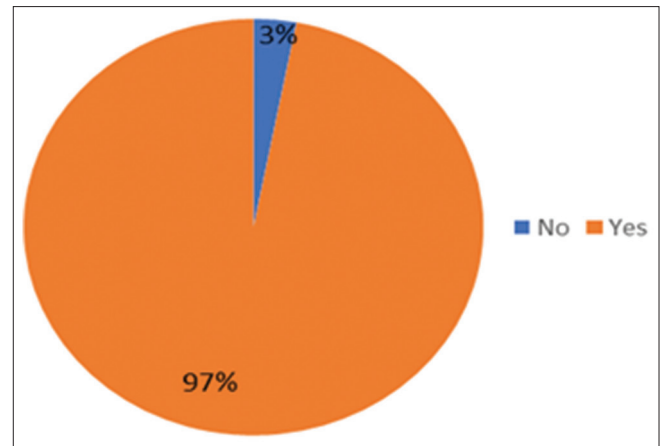


Figure 3: Expert opinion on negative outcomes of administration of *Saccharomyces boulardii* in the general population

6. Can *S. boulardii* CNCM I-745 be used as an adjunct to oral rehydration therapy for the management of acute gastroenteritis?

All the doctors (100%) agreed that *S. boulardii* CNCM I-745 can be used as an adjunct to oral rehydration therapy for the management of acute gastroenteritis. This suggests a strong consensus among experts regarding the potential effectiveness and appropriateness of using *S. boulardii* CNCM I-745 in conjunction with oral rehydration therapy for treating acute gastroenteritis.

7. Is *S. boulardii* a safe probiotic?

Among the expert panel, 97% of the doctors agreed that *S. boulardii* is considered a safe probiotic. This high level of

agreement underscores the widespread confidence within the medical community regarding the safety profile of *S. boulardii* when used as a probiotic supplement. This indicates a strong consensus among specialists in the field [Figure 4].

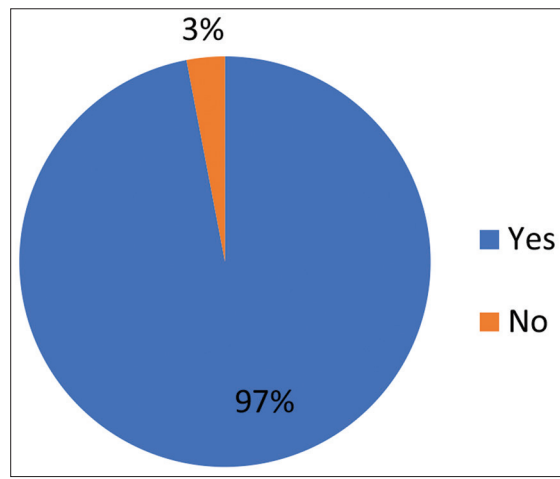


Figure 4: Expert opinion on the safety of *Saccharomyces boulardii*

1. Dr. Ajay Kumar Gupta, MBBS, DCH
Child Care Clinic, Laxmi Nagar, Delhi

S. boulardii CNCM I-745 is known for its immunological and antitoxin effects, modulation of intestinal flora, and impact on enzyme activity. It is a safe probiotic that can survive bile and gastric acid. It can shorten the duration of diarrhea. *S. boulardii* CNCM I-745 is recommended by the European Society for Pediatric Gastroenterology Hepatology and Nutrition (ESPGHAN) due to its safety and efficacy. I recommend it for patients with AAD and PAGE.

2. Dr. Alok Rai, MD
Sangam Hospital, Allahabad, Uttar Pradesh

Pediatric gut dysbiosis results from a disproportion in the gut intestinal microbiota. According to my clinical experience, yeast probiotics are best suited to restore this proportion. *S. boulardii* CNCM I-745, a yeast probiotic, has been shown to reduce the risk of infection in immunocompromised patients. It has no side effects and it is naturally resistant to antibiotics and proteolysis.

3. Dr. Amandeep Singh, MD Pediatrician
Dr. Amandeep Singh Children's Clinic, Amritsar, Punjab

I think *S. boulardii* CNCM I-745 is a safe probiotic for treating both AAD and PAGE. It can be used as an adjunct to rehydration therapy for the management of acute gastroenteritis. In my clinical practice, I have not observed any side effects of using the yeast probiotic. They

are probiotics that have good immunological and antitoxin effects, have a reasonable impact on enzyme activity, and can modulate the intestinal flora.

4. Dr. Anil Vaishnavi, MD (DNB), DCH, FCPS
Batra Hospital, New Delhi

According to my knowledge and clinical experience, I believe that PAGE can be effectively managed with yeast probiotics. *S. boulardii* CNCM I-745 is recommended by the ESPGHAN as safe and efficient for its use. Using *S. boulardii* CNCM I-745 decreases the diarrheal duration and can be used with lower risk in immunocompromised patients. I have not come across any notable side effects of using this yeast probiotic.

5. Dr. Anju Kalra, MBBS, DCH
Kalra Clinic, New Delhi

Yeast probiotics have the distinguishing characteristics of being naturally resistant to antibiotics and proteolysis. Yeast probiotics such as *S. boulardii* CNCM I-745 impact the duration of diarrhea by reducing it. It is the preferred choice of probiotic for the management of both AAD and PAGE. I have not seen any side effects of yeast probiotics in my practice. I think that it is a safe probiotic to use.

6. Dr. Ashish Baliyan, MBBS, DCH
Navjeevan Child Clinic, Muzaffarnagar, Uttar Pradesh

I have observed that pediatric gut dysbiosis is caused by a disproportion of the intestinal microflora. Probiotics such as the yeast probiotic *S. boulardii* CNCM I-745 are very helpful, especially in shortening the duration of diarrhea. It has unique properties that aid in the modulation of the intestinal microflora. I strongly recommend using *S. boulardii* CNCM I-745 as a preferred probiotic for the management of AAD and PAGE.

7. Dr. Ashok Chakravarty, MBBS, MD
Children's Clinic, New Delhi

AAD can be better managed with yeast probiotics, as per my clinical experience. Besides having no side effects, they are safe to use in the general population. Yeast probiotics such as *S. boulardii* CNCM I-745 can be used as an adjunct to oral rehydration therapy for the management of acute gastroenteritis. It has been recommended for use by global organizations such as the ESPGHAN due to its safety and efficacy.

8. Dr. Dalpat Choudhary, MBBS, MD, MIAP
Dr. Dalpat Choudhary Clinic, Jodhpur, Rajasthan

As per my clinical practice experience, I think that the most effective way to restore gut microbial balance is to avoid

the use of antibiotics and instead use yeast probiotics. A yeast probiotic, such as *S. boulardii* CNCM I-745, is the preferred choice of probiotic for the management of AAD and PAGE. Lyophilized *S. boulardii* survives well in the intestinal milieu and modulates the intestinal flora to restore the imbalance caused by pediatric gut dysbiosis.

9. Dr. Deepa Laxmi, MBBS, MD

Sanjivani Hospital, Jasola, New Delhi

The gut microflora is often affected during pediatric gut dysbiosis, which can be restored by reducing overall antibiotic use or using yeast probiotics. According to my clinical experience, *S. boulardii* CNCM I-745 is safer for immunocompromised individuals. I have not noticed any side effects of this probiotic, and it seems to be naturally resistant to antibiotics and proteolysis. *S. boulardii* CNCM I-745 can also be used as an adjunct to oral rehydration therapy for the management of acute gastroenteritis.

10. Dr. Devashish Das, MD (Pediatrician)

Dr. D. Das Clinic, Katwaria Sarai, New Delhi

Disproportion in the gut microflora is responsible for causing pediatric gut dysbiosis. I believe that yeast probiotics can effectively manage PAGE. A probiotic, especially *S. boulardii* CNCM I-745, is safe to use without any side effects. It can be used as an adjunct to oral rehydration therapy for the management of acute gastroenteritis. One of the unique features of this probiotic is its natural resistance to antibiotics and proteolysis.

11. Dr. G S Tanwar, MD (Pediatrician)

SP Medical College, Rajasthan

AAAD can be better managed with yeast probiotics due to their unique features, such as immunological and antitoxin effects, their ability to modulate the intestinal flora, and their impact on enzyme activity. Furthermore, probiotics such as *S. boulardii* CNCM I-745 can be used as an adjunct to oral rehydration therapy for the management of acute gastroenteritis without any side effects. I highly recommend using this yeast probiotic to shorten the duration of diarrhea. It is a safe probiotic that can be used to treat PAGE.

12. Dr. Girijesh Kumar Verma, MBBS, MD (Pediatrician)

Shishu Muskan Clinic, Ghaziabad, Uttar Pradesh

S. boulardii CNCM I-745 is a probiotic of yeast origin that is less likely to infect immunocompromised patients. It is a safe probiotic with no side effects. I think it can be used effectively to manage both AAD and PAGE. *S. boulardii* CNCM I-745 is also recommended by ESPGHAN.

13. Dr. Jagdish Tuteja, MBBS

Tuteja Clinic, Delhi

I think the yeast probiotic *S. boulardii* CNCM I-745 can be used as an adjunct to oral rehydration therapy for the management of acute gastroenteritis. In my clinical experience, I have not come across any side effects of this probiotic and I believe that it is the most effective way to restore the gut microbial balance. According to me, the yeast probiotic has no effect on immunocompromised patients. *S. boulardii* CNCM I-745 is also naturally resistant to antibiotics and proteolysis.

14. Dr. Karanveer Kataria, MBBS, DCH (Pediatrician)

Kataria Hospital, Punjab

As per my clinical practice, I recommend using the yeast probiotic *S. boulardii* CNCM I-745 for managing AAD and PAGE without any concerns about side effects. It is a safe probiotic that has been recommended by the ESPGHAN. Lyophilized *S. boulardii* CNCM I-745 can tolerate the extreme conditions of the human GI tract and can help shorten the duration of diarrhea.

15. Dr. Manas Shukla, MBBS, MD

Shukla Child Clinic, Alambagh, Lucknow, Uttar Pradesh

As per my clinical practice experience, I think using yeast probiotics is the most efficient way of restoring gut microbial imbalance. I have not come across any side effects from it and consider it safe for use in the general population. Due to the safety and efficacy of *S. boulardii* CNCM I-745, it is recommended by the ESPGHAN. It is very effective in shortening the duration of diarrhea.

16. Dr. Mohit Jain, DNB Pediatrician

Neerja Hospital, Sikar, Rajasthan

I prefer the use of yeast probiotic *S. boulardii* CNCM I-745 for managing AAD and PAGE. *S. boulardii* CNCM I-745 has beneficial effects such as immunological and antitoxin effects, the ability to modulate the intestinal flora, and its impact on enzyme activity. It has been recommended for use by global organizations such as the ESPGHAN, due to its safety and efficacy.

17. Dr. Naveen Gahlot, MD Pediatrician

Dr. Naveen Health Centre, Delhi

I would recommend the use of *S. boulardii* as a preferred probiotic for the management of AAD and PAGE. It is a safe probiotic with the ability to survive bile and gastric acid. It can also shorten the duration of diarrhea. *S. boulardii* CNCM

I-745 is recommended by the ESPGHAN for its safety and efficacy. Besides, lyophilized *S. boulardii* CNCM I-745 can tolerate the extreme conditions of the GI tract in the human body and can help shorten the duration of diarrhea.

18. Dr. Neelmani Garg, MBBS, MD

Garg Child Care Clinic, Gangapur City, Rajasthan

Disproportion in the gut microflora causes pediatric dysbiosis, which can be managed using yeast probiotics. *S. boulardii* CNCM I-745, a yeast probiotic, is the preferred probiotic for the management of associated AAD and PAGE. It is a safe probiotic that can survive bile and gastric acid. It can also shorten the duration of diarrhea. I also think immunocompromised patients are at a reduced risk of infection from this probiotic.

19. Dr. Pankaj Chaudhary, MBBS, DCH

Dr. Pankaj Chaudhary Children Clinic, Punjab

As per my clinical experience, both using a probiotic and decreasing the use of antibiotics are effective ways to restore gut microflora. A yeast probiotic such as *S. boulardii* CNCM I-745 is known for its immunological and antitoxin effects, modulation of intestinal flora, and impact on enzyme activity. It is a safe probiotic that can survive bile and gastric acid and can shorten the duration of diarrhea. *S. boulardii* CNCM I-745 is also recommended by the ESPGHAN.

20. Dr. Rajnish Chaudhary, MD Pediatrician

Kilkari Children's Hospital, Uttar Pradesh

The probiotic yeast *S. boulardii* CNCM I-745 does not affect immunocompromised patients. Lyophilized *S. boulardii* CNCM I-745 can survive both gastric acid and bile, making it a preferred probiotic to manage AAD and PAGE. The characteristic features of yeast probiotics such as *S. boulardii* CNCM I-745 include its immunological and antitoxin effects, modulation of intestinal flora, and impact on enzyme activity. It can be considered a safe probiotic that can survive the bile and gastric acid possessing the ability to shorten the duration of diarrhea.

21. Dr. Ram Lal, MBBS, DCH

Abhinav Hospital, Rajasthan

S. boulardii CNCM I-745 is recommended as a yeast probiotic by the ESPGHAN. This probiotic can effectively treat PAGE. *S. boulardii* CNCM I-745 has no side effects, can shorten the duration of diarrhea, and is safe for use. I recommend its use for the management of AAD and PAGE.

22. Dr. S C Gupta, MBBS, DCH

Shikhar Child Care Clinic, Laxmi Nagar, New Delhi

As per my clinical experience, I think *S. boulardii* CNCM I-745 can be used as an adjunct rehydration therapy for the management of acute gastroenteritis. Due to its safety and efficacy, *S. boulardii* CNCM I-745 has been recommended by international organizations such as the ESPGHAN. *S. boulardii* CNCM I-745 has several characteristic features, including immunological and antitoxin effects, modulation of intestinal flora, and impact on enzyme activity. Another advantage of this yeast probiotic is that it can reduce the risk of infection in immunocompromised patients.

23. Dr. S K Singh, MD

Golden Health Care, Delhi

S. boulardii CNCM I-745, as per my knowledge, can be used as an adjunct to oral rehydration therapy for managing acute gastroenteritis. It is also one of the preferred choices to manage AAD and PAGE. Lyophilized *S. boulardii* CNCM I-745 can survive both gastric acid and bile. It has the potential to shorten the duration of diarrhea. There are no known side effects, and this yeast probiotic is safe for use in the general population.

24. Dr. Sanjeev Tandan, MBBS, MD

Abhay Clinic, New Delhi

S. boulardii CNCM I-745 is a yeast probiotic that is naturally resistant to antibiotics and proteolysis. Its lyophilized form can survive both gastric acid and bile. The safety and efficacy of the yeast probiotic are supported by recommendations from international organizations such as the ESPGHAN. I suggest its use as a preferred choice for managing both AAD and PAGE.

25. Dr. Satpal Yadav, MBBS, DCH

Dr. Satpal Child Care Center, Delhi

I think PAGE can be effectively managed by yeast probiotics; they can also be used as an adjunct to oral rehydration therapy to treat the same condition. Yeast probiotics such as *S. boulardii* CNCM I-745 can impactfully shorten the duration of diarrhea. It can survive gastric acid and bile in lyophilized form. Because of its immunological and antitoxin effects, modulation of intestinal flora, and impact on enzyme activity, it is even recommended by international organizations such as the ESPGHAN.

26. Dr. Harish Nara, MD Pediatrician

Latha Children's Hospital, Guntur, Andhra Pradesh

I believe that the structure and function of the gut intestinal microbiota are disproportionate in pediatric gut dysbiosis, and the most effective way to restore them is by avoiding or minimizing the use of antibiotics. Another way to use probiotics is for which I think *S. boulardii* CNCM I-745 can be safe to use. As per my clinical practice, I have seen no side effects from using this probiotic, and it can effectively reduce the frequency of diarrhea.

27. Dr. Pragati Reddy, MD Pediatrician
Suraksha Hospital, Guntur, Andhra Pradesh

As per my experience, I think *S. boulardii* CNCM I-745 is the most preferred probiotic for the management of AAD and pediatric acute gastritis. It is also recommended as a probiotic by global organizations such as the ESPGHAN. It can be used as an adjunct to oral rehydration therapy to effectively shorten the duration of diarrhea. The effectiveness of yeast probiotics is based on their immunological and antitoxin effects, modulation of intestinal flora, and impact on enzyme activity.

28. Dr. G. Ravindranath, MD Pediatrician
Sri Krishna Mother and Child Hospital, Eluru, Andhra Pradesh

I think *S. boulardii* CNCM I-745 can be used as an adjunct oral rehydration therapy for the management of acute gastroenteritis due to its low side effects. Lyophilized *S. boulardii* CNCM I-745 can survive both gastric acid and bile. Hence, I think it is a preferred probiotic for treating AAD and PAGE. It can effectively shorten the duration of diarrhea.

29. Dr. CH. Rakesh, MD Pediatrician
Ankura Hospital, Khammam, Telangana

I would recommend using *S. boulardii* as a preferred probiotic for the management of AAD and PAGE. It is a safe probiotic with the ability to survive bile and gastric acid and to shorten the duration of diarrhea as well. *S. boulardii* CNCM I-745 is recommended by the ESPGHAN, due to its safety and efficacy. Besides, the lyophilized form of *S. boulardii* CNCM I-745 can tolerate the extreme conditions of the GI tract in the human body and can help shorten the duration of diarrhea.

30. Dr. B Ramprasad, MBBS, DCH
Venkata Krishnaya Children Hospital, Guntur, Andhra Pradesh

I think using the yeast probiotic *S. boulardii* CNCM I-745 for managing AAD and PAGE is a good choice of treatment. It is recommended for use due to its immunological

and antitoxin properties, the ability to modulate the intestinal flora, and its impact on enzyme activity favor using *S. boulardii* CNCM I-745. Its use has also been recommended by global bodies such as the ESPGHAN, due to its good safety and efficacy levels.

31. Dr. Prince Parakh, MD Pediatrician
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S. boulardii CNCM I-745 helps to shorten the duration of diarrhea. It is a yeast-derived probiotic that can be used as an adjunct to oral rehydration therapy for the management of acute gastroenteritis. *S. boulardii* CNCM I-745 is also one of the preferred choices of probiotics for the management of AAD and PAGE. It has been recommended by international organizations such as the ESPGHAN.

32. Dr. Prabir Bhaumik, MBBS, DCH, MD, Pediatrician
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I believe that the structure and function of the gut intestinal microbiota are not disproportionate in pediatric gut dysbiosis. According to my clinical experience, yeast probiotics are best suited to restore this proportion. *S. boulardii* CNCM I-745 is a probiotic of yeast origin that is less likely to infect immunocompromised patients. It is a safe probiotic with no side effects, and it is naturally resistant to antibiotics and proteolysis. The most effective features of yeast probiotic *S. boulardii* CNCM I-745 are immunological and antioxidant effects, modulation of intestinal flora, and impact on enzyme activity. It helps to shorten the duration of diarrhea. Lyophilized *S. boulardii* survives well in gastric acid. I think that it can be used effectively to manage both AAD and PAGE, and it can be used as an adjunct to oral rehydration therapy for the management of acute gastroenteritis. The probiotic *S. boulardii* CNCM I-745 is recommended by the ESPGHAN due to its safety and efficacy.

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