

A Need for More Clinical Trials to Study the Emerging Effect of Herbal Nano-Drugs in Treatment of Ulcerative Colitis

Muhammad Ahmad Imran^{1*}, Sana Aslam², Qurrat ul ain Iqbal³, Muhammad Asad Shabbir⁴

¹Shaikh Zayed Post Graduate Medical Complex, Lahore, Pakistan, ²Benazir Bhutto Hospital, Rawalpindi, Pakistan, ³Shaikh Zayed Post Graduate Medical Complex, Lahore, Pakistan, ⁴Gujranwala Medical College, Gujranwala, Pakistan

Ulcerative colitis (UC) is a chronic inflammatory condition of the colon, marked by recurring flare-ups and remission. It can lead to complications such as bleeding, colon perforation, and a higher risk of colorectal cancer (CRC).¹ A Scandinavian cohort study found that individuals with UC had a 1.66 times greater risk of developing CRC, and those with both UC and CRC faced a 1.59 times higher mortality risk than CRC patients without UC.² Ulcerative colitis (UC) arises from complex interactions among genetic factors, immune dysfunction, environmental triggers, and gut microbiota changes. Treatments include 5-aminosalicylic acids, corticosteroids, immunosuppressants, and biologics. Despite these options, 10–20% of patients eventually require proctocolectomy due to treatment resistance, with ongoing risks of side effects.³ Recent studies using mouse models have shown encouraging results with probiotics and herbal treatments such as curcumin, saffron, and *Lactobacillus*. Chao Wu et al. demonstrated that dextran sulfate-coated curcumin nanocrystals enhance drug solubility and efficacy, while reducing inflammation and oxidative stress in ulcerative colitis.⁴ Similarly, research by Demin Cai et al. found that the probiotic *Lactobacillus johnsonii* alleviates intestinal inflammation and restores the

Treg/Th17 balance in a dextran sulfate sodium-induced colitis model.⁵ Saffron, known as the "Golden Spice," has shown promising effects in treating ulcerative colitis without reported side effects. It has high bioavailability, anti-inflammatory, and anti-carcinogenic properties. Studies indicate it reduces inflammation by modulating immune responses and acts through Ahr/Nrf2 pathways in experimental models.^{6,7}

There's a clear need for more clinical research into probiotic and herbal treatments using nanocrystal technology for ulcerative colitis. So far, only one human trial has looked at saffron, six at curcumin, and three at *Lactobacillus* in UC patients. Given their strong bioavailability and promising early results, these nanoformulations could offer a safer and faster-acting alternative to current treatments, but larger-scale studies are essential to fully understand their potential.

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*Shaikh Zayed Post Graduate Medical Complex, Lahore, Pakistan

Email: ahmad.imran@skzmdc.edu.pk

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