

# Effect of Synthetic Food Colourants on Human Gut Microbiome †

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**Abstract:** The history of food additives dates back to the 1800s. There are over 2500 varieties of additives. Food additives include preservatives, nutritional additives, coloring agents, flavoring agents, texturizing agents, and miscellaneous agents. In the present study, the effect of synthetic food colorants viz., Kesar orange, strawberry pink, and apple green on the selected human gut microbiome, namely *Escherichia coli* and *Lactobacillus acidophilus* was evaluated using the Modified Microtitre broth dilution method. All the test concentrations (0.002, 0.004, and 0.006mg/ml) of the selected food colorants showed dose-dependent inhibitory percentage. The inhibitory percentage was also found significant concerning the incubation duration from 0-8h. Maximum inhibition was found at 6mg/ml for all the colourants *Lactobacillus* was found to be more inhibited (78% of inhibition) than *E. coli*. Concerning the synthetic colorants, apple green was found to have more inhibitory properties than other selected colorants. *Lactobacillus*, which was reported to reduce the azo reductase activity, was observed to be inhibited by the synthetic colorants, Hence from the above study, it is proved that the synthetic food colorants are azo reduced by the intestinal flora, thereby increasing the probability of causing a disturbance in the Intestinal tract.

**Keywords:** synthetic food colourants; gut microbiome; *Lactobacillus*; *E. coli*; reductase activity.

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