

Determination of the Effect of Kaolin on the Antimicrobial Activity of Metronidazole-Kaolin Interaction

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Abstract : Kaolin is one of the principle intestinal adsorbents, has traditionally been used internally in the treatment of various enteric disorders, colitis, enteritis, dysentery, and diarrhea associated with food and alkaloidal poisoning and in traveler's diarrhea. It binds to and traps bacteria and its toxins and gases in the gut. It also binds to water in the gut, which helps to make the stools firmer, hence giving symptomatic relief. Metronidazole is a synthetic antibacterial agent that is used primarily in the treatment of various anaerobic infections such as intra-abdominal infections, antiprotozoal, and as amebicidal. The need for safe, therapeutically effective antidiarrheal combination continuously lead to effective treatment. Metronidazole used for treatment of anaerobic bacteria and kaolin, when administered simultaneously, Metronidazole-Kaolin interactions have been reported by FDA but not studied. This project is the first to study the effect of Metronidazole-Kaolin interactions on the antimicrobial activity of metronidazole. Agar diffusion method performed to test the antimicrobial activity of metronidazole-kaolin antidiarrheal combination from aqueous solutions at an in-vivo simulated pHs conditions that obtained at 37 ± 0.5 °C on *Helicobacter pylori* as anaerobic bacteria and *E.coli* as aerobic bacteria and used as a control for the technique. The antimicrobial activity of metronidazole combination as 1:1 and 1:2 with kaolin was abolished in acidic media as no zones of inhibition shown compared to only metronidazole that used as a control. In alkaline media metronidazole combination as 1:1 and 1:2 with kaolin showed diminutive activity compared to the control. These results proved that the kaolin adsorb metronidazole and abolish its antimicrobial activity and such combination should be avoided.

Keywords : kaolin, metronidazole, interaction, *Helicobacter pylori*, *E. coli*, antimicrobial activity

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