1.2.3 Chemical and Physical Properties of Esomeprazole

Esomeprazole belongs to the PPIs family of drugs , it acts by inhibiting the H^+/K^+ ATPase in gastric parietal cells which lead to prevent the formation of gastric acid ,It is the S-enantiomer of omeprazole and has the chemical formula $C_{17}H_{19}N_3O_3S$ .and has the IUPAC name 5-methoxy-2-[(R)-[(4-methoxy-3,5-dimethylpyridin-2-yl)methane]sulfinyl]-1H-1,3-benzodiazole . with an average weight of 345.416 g/mol . the chemical structure is shown in Figure (3) (lind T *et al*., 2000)

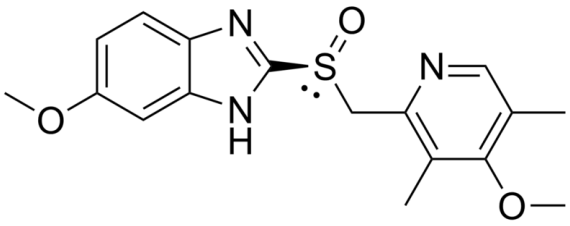

Figure 3: Chemical structure of esomeprazole

The s-isomer of omeprazole (esomeprazole), is more bioavailable than omeprazole because it has a lesser first-pass effect with a slower plasma clearance. Esomeprazole in dosages of 20 and 40 mg produces higher 24-hour intragastric pH levels than omeprazole do, thus possibly resulting in superior acid control. On the other hand, they have similar incidence and types of adverse effects (Röhss K *et al*., 2002).

Esomeprazole is available in the market as delayed-release capsules containing enteric-coated pellets in doses of 20 and 40 mg. It should be taken one hour before meals, and dosage adjustment is not necessary in elderly patients or those with mild to moderate