**Barriers and Considerations in the Extemporaneous Compounding of Omeprazole and Lansoprazole for Pediatric Patients in Public Hospital**

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**Background and aims.** Proton pump inhibitors (PPIs) such as omeprazole and lansoprazole are commonly used to treat pediatric gastroesophageal reflux disease (GERD), particularly when compared to ranitidine in managing extra-esophageal reflux. However, tablet strengths available in Indonesia often exceed the required pediatric dose, prompting the need for alternative formulations like suspensions. Since commercial pediatric-friendly formulations are not available locally, extemporaneous suspensions must be prepared. These liquid forms, however, typically have lower stability and must be compounded upon receiving a prescription. The aim of this study is to develop a child-appropriate formulation with suitable dosage and improved palatability, and to evaluate the stability of extemporaneously prepared omeprazole and lansoprazole suspensions.

**Methods** The formulations for omeprazole 2 mg/mL and lansoprazole 3 mg/mL were adapted from Lexicomp and modified based on the availability of ingredients in Indonesia. The ingredients used included omeprazole 20 mg capsules, lansoprazole 30 mg capsules, sodium bicarbonate powder, simplex syrup, strawberry sweetening agent, sodium CMC, nipagin, nipasol, and purified water. This study employed an experimental design focusing on the formulation and stability evaluation of extemporaneously prepared liquid dosage forms. Key parameters assessed included pH, viscosity, sedimentation rate, and taste to determine the physical stability and palatability of the formulations for paediatric.

**Results.** Physical evaluation of omeprazole and lansoprazole suspensions included taste testing by 10 healthy adults, reporting a mildly sweet, slightly salty, and slightly bitter taste, overall acceptable. Omeprazole suspension showed viscosity of 91.4 mPa.s (30 rpm) and 83.9 mPa.s (60 rpm), sedimentation ratio (F) of 0.99, and pH 7.4. Lansoprazole suspension had viscosity of 78.3 mPa.s (30 rpm), 72.0 mPa.s (60 rpm), F value of 0.98, and pH 6.7.

**Conclusion.** The physical evaluation of the Omeprazole suspension formulation showed adequate viscosity and a neutral to slightly alkaline pH, indicating good stability. In contrast, the Lansoprazole suspension formulation demonstrated similarly acceptable viscosity but had a slightly alkaline pH, which may affect its stability.

**References.**

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