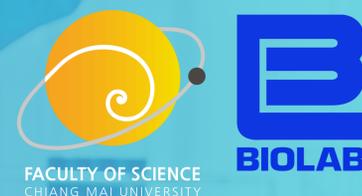


Comparison of Preservative Content in Medicinal Product in Different Packaging : Amber Plastic Bottles and Sachets



Pornnipha Kaenla,¹ Lalida Shank,¹ Panchika Prangkio,¹ Wiphada Somna,² Patinya Waree.²

¹Biochemistry and Biochemical Innovation, Department of Chemistry, Faculty of Science, Chiang Mai University

²BIO LAB CO., LTD.

Abstract

Drug A requires preservatives (methylparaben & propylparaben) to prevent microbial contamination. This study compares their stability in amber plastic bottles and sachets using UPLC after 12 months. Results show that methylparaben levels in bottles ($55.04 \pm 0.78\%$) and sachets ($54.82 \pm 0.02\%$) were not significantly different ($p > 0.05$), whereas propylparaben levels in bottles ($73.06 \pm 1.24\%$) and sachets ($70.18 \pm 1.26\%$) showed significantly different ($p < 0.05$). Both preservatives degraded from their labeled concentrations. More propylparaben loss occurred in sachets, likely due to adsorption onto the packaging. These findings highlight the impact of packaging on preservative stability and suggest the need for further studies on environmental influences.

Introduction

- Drug A is a liquid medication that requires preservatives (methylparaben & propylparaben) to prevent microbial contamination.
- Factors like packaging, light, humidity, and oxygen may affect preservative stability.
- Packaging type (amber plastic bottles vs. sachets) may impact preservative stability.

Objectives

- To compare the preservative content in Drug A stored in amber plastic bottles and sachets.
- To evaluate the impact of packaging on the stability of preservatives in Drug A.
- To analyze the suitability of different packaging types for Drug A.

Conclusion

- Preservative levels decreased in both amber plastic bottles and sachets after 12 months.
- More **propylparaben loss in sachets was observed**, likely due to **adsorption onto the packaging**.
- Methylparaben levels were similar between packaging types.
- Packaging selection affects preservative retention** and may impact long-term drug stability.

Further study

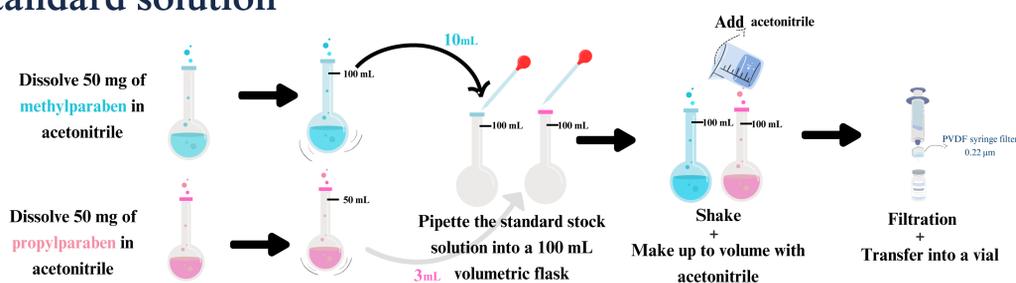
- Adsorption mechanisms.
- Environmental factors.
- Explore alternative packaging.

Acknowledgments

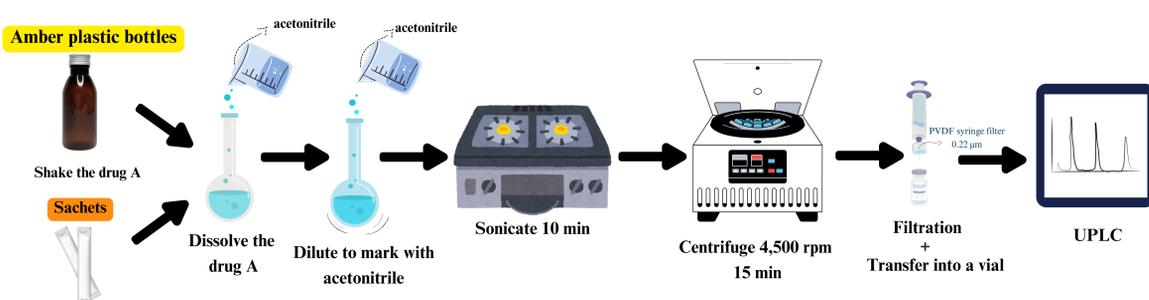
- Department of Chemistry, Faculty of Science, Chiang Mai University
- QCF (Quality Control Finished Product), Biolab Co., Ltd.
- QCM (Quality Control Microbiology), Biolab Co., Ltd.

Methods

Standard solution

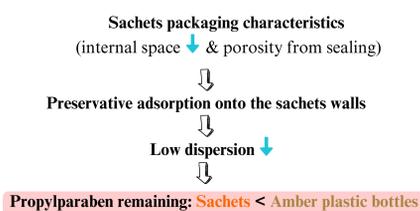
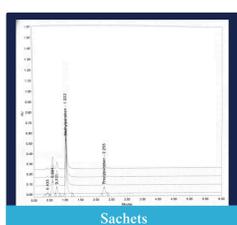
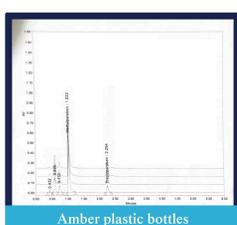
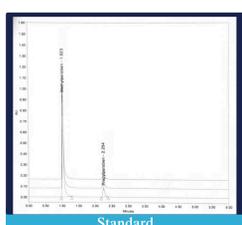


Sample solution



Results & Discussion

Methylparaben	Standard	Amber plastic bottles		Sachets		Propylparaben	Standard	Amber plastic bottles		Sachets	
		Sample 1	Sample 2	Sample 1	Sample 2			Sample 1	Sample 2		
Weight (mg)	50.37000	2.7840	2.7206	2.7095	2.7095	Weight (mg)	50.35000	2.7840	2.7206	2.7095	2.7095
Peak area average	2828228	1647490	1577959	1575103	1574361	Peak area average	334990	258628	246726	240946	234912
%W/V		0.22		0.22		%W/V		0.04		0.04	
%LA average		$55.04 \pm 0.78\%$		$54.82 \pm 0.02\%$		%LA average		$73.06 \pm 1.24\%$		$70.18 \pm 1.26\%$	
Statistical analysis was performed using a paired t-test.		which were not significantly different ($p > 0.05$)				Statistical analysis was performed using a paired t-test.		which were significantly different ($p < 0.05$)			



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