

Durable Aroma Finishing of Terry Towel

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1. INTRODUCTION

Aroma therapy has a wide range of clinical applications. Aroma oils are volatile, by their very nature. Perfumed fabric would thus very rapidly lose its odor. To remedy this disadvantage, it is known to include aroma oil in microcapsules and incorporate these doped microcapsules in printing pastes. The microcapsules are then fixed by binder as well. If a fabric which has been printed in this way is rubbed, the microcapsules will burst and immediately release the scent.

Finishing a textile with long-term scent-releasing properties is a desirable commercial goal, as well as significant textile chemical and engineering challenge. Two aspects are included in the challenge; scent releasing life time and aroma wash fastness.

The focus of this study was to introduce a durable fragrant finishing with various aroma-complexes on terry towel for replacing the destruction of microcapsules by the external friction.

2. EXPERIMENT

2.1 Material

A breached and mercerized 100% cotton terry towel weighing 313g/m² was used for the study. M/F (melamine/formaldehyde) microcapsules (Lavender fragrance capsule) was obtained from J&C co. For fixing aroma-complexes and microcapsules on towel, an formulated acrylic binder was obtained from Asiana Chemical.

2.2 Preparation of aroma-complexes

The optimised synthesis of hybrid aroma-complex was performed from a solution of AlCl₃·6H₂O and fumaric acid in distilled water at 65°C for 16h, recovering the white precipitate by centrifugation at 5000rpm for 10min. and the dehydrated white precipitate was suspended into lavender oil solution under stirring. After 3 days, hybrid aroma-complex was recovered by centrifugation and dry under air.

The inorganic aroma-complex was prepared that s inorganic power was added to suspended aroma oil slowly under stirring and then separated by centrifugation

2.3 Aroma printing on Terry towel

The aroma-complexes were distributed in the acrylic binder by using an ultra-sonicator. Screen printing method was based on their common operation in industry and dried in the tenter at 130°C for 2min.

2.4 Measurement

After washing cycle, the quantity of remained Lavender oil eluded into warm ethanol from printed towel was measured by using UV-VIS spectrophotometer. (Lavender oil's λ_{\max} : 285 nm)

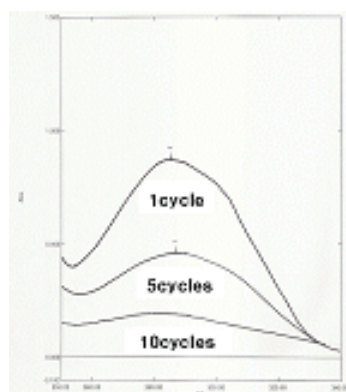
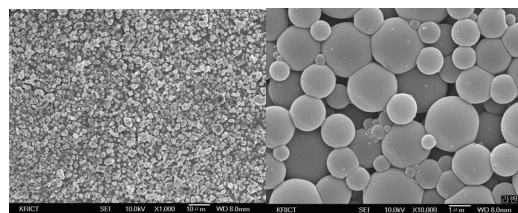


Fig. 1. UV-VIS spectra for lavender oil /ethanol solution after washing

3. RESULT & DISCUSSION

The current investigation revealed that fabric treated with aroma-complexes would exhibit comparable durability showed sustained and more stable release than those of MF microcapsules.

It was ascribed to the breakage of MF aromatic microcapsules deposited over the binder layer due to the external friction.



Picture 1. SEM of aroma-complex and M/F microcapsules.

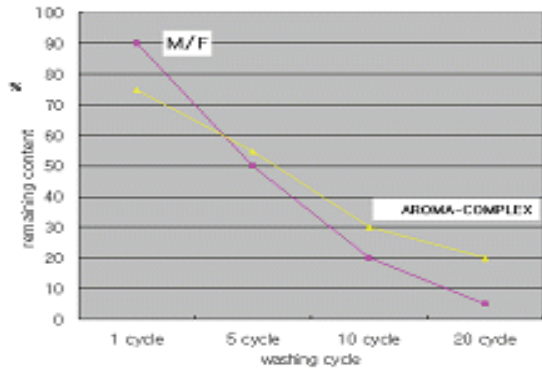


Fig. 2. Wash durability of aroma-complex and M/F microcapsules

ACKNOWLEDGEMENT

This work came out from results of research project financed of Ministry of Knowledge Economy.

4. REFERENCES

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