

A MICROSCOPICAL EXPLORATION OF COLD RELIEF CAPSULES, NAIL POLISH REMOVER AND STICKY TAPE

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Introduction

On most UK high streets the amateur microscopist can purchase, very cheaply, all the items required for this exploration.

I bought proprietary max strength cold relief capsules (containing Paracetamol, Caffeine and Phenylephrine hydrochloride), acetone free nail polish remover (ethyl acetate), clear stick tape and coffee filter papers. Total cost less than £4 sterling.

What Was Done

Firstly, I cut the tops off two of the capsules and emptied the contents into a small lidded glass jar (you know, the kind you get filled with jam when you order afternoon tea in a café).

To the jar were then added twenty millilitres of the nail polish remover. The lid was replaced, the jar was shaken and the contents were allowed to dissolve for about half an hour. The resulting solution was then clarified by filtration through a filter paper circle cut from a coffee filter, in order to remove any undissolved solids.

Three drops of the clear solution were placed on a clean glass slide and allowed to evaporate at room temperature.

While the evaporation proceeded different layers/thicknesses of clear stick tape were applied to clean glass slides (lengthways, crossways, diagonally, you choose) which produced a series of 'waveplates'.

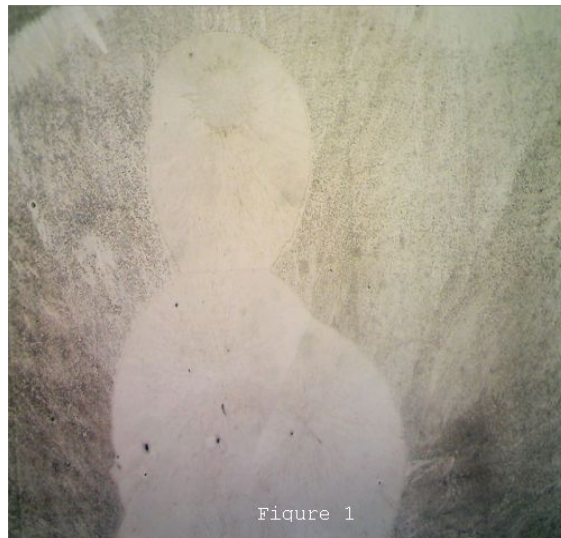
The crystals on the slide were then viewed using my old Vickers M10A microscope which has PRIOR x2.7 objective and Brunel Eyecam Plus eyepiece camera fitted. The microscope is also fitted with a raised clear glass stage plate to allow optical filters to be interposed between the stage and the specimen slide being observed, without having to move the specimen slide.

Figure 1 shows the image captured using conventional incandescent sub-stage illumination.

A homemade polarising filter was then inserted immediately above the microscope sub-stage condenser and a similarly homemade analyser was positioned in the body tube above the microscope objective.

Figure 2 shows the resulting image of the same area of the slide using polarised light.

Each of the three 'waveplates' constructed above were then interposed, one at a time, between the microscope stage and the stage plate and the images in Figures 3, 4, and 5 were captured.





In Conclusion

There are almost limitless variations in colour and pattern resulting from the simple microscopical procedure detailed above, which is also applicable to many other toiletries, cosmetics and pharmaceuticals.

As we say here in Cumbria,

“AVE A GO YERSELF”

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