

OBLIQUE ILLUMINATION

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INTRODUCTION:

My first encounter with oblique illumination was by reading the article: <http://www.microscopy-uk.org.uk/dww/articles/oblique.htm> by Dave Walker. Here the author explains clearly what oblique illumination is and the possible applications to use it, he also explains how the stops can be made in a DIY form, and invites readers to try it.

DEVELOPMENT:

Oblique illumination is a beautiful technique for creating contrast in a microscopy sample. This follows a very simple principle, the only thing to do is to take away from the center the beam of light that comes from the illuminator and make it enter by one side. This is easily achieved by using an opaque stop with a hole in the periphery

It can also be done by placing upon the illuminator any opaque stop that blocks on one side most of the light.

Another technique that can work is by taking the condenser a bit off-axis.

Oblique illumination works better with high magnification powers 40x 100x because this two objectives need a lot of light to illuminate the field and when oblique lighting is used the object seem to acquire a kind of relief which gives the impression that the object in the sample is tridimensional, with low magnification powers it produces a kind of darkfield. It is another amazing technique isn't it?

If you use Google to search for oblique illumination microscopy you are presented with many photographs and one of those photographs is shown below that gives a lot of ideas of possible oblique illumination filters which are very easy to reproduce using some black cardboard or black plastic. The filters shown are sold by eBay seller [optitec2020](#).

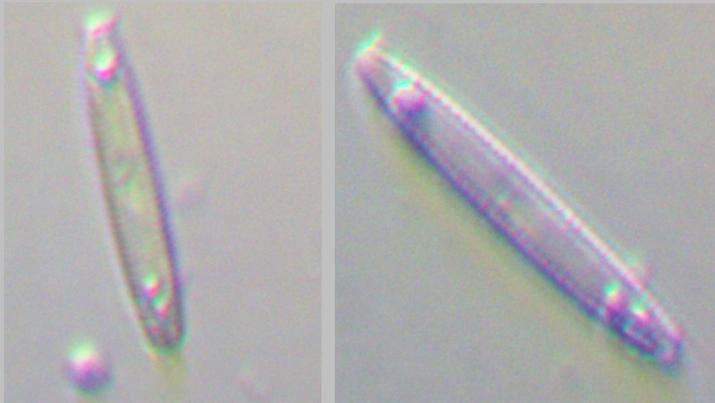


Here is the filter I made using black cardboard:

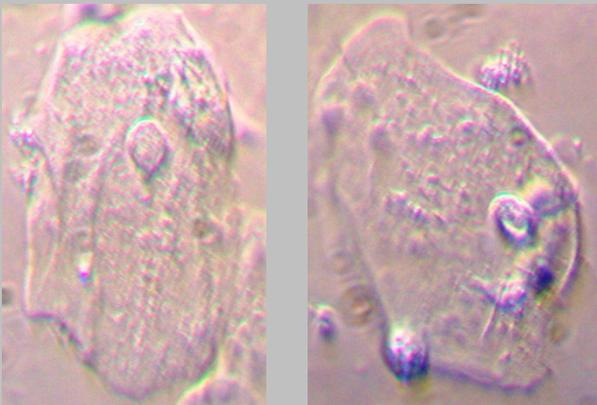


With this filter I took all the photos below

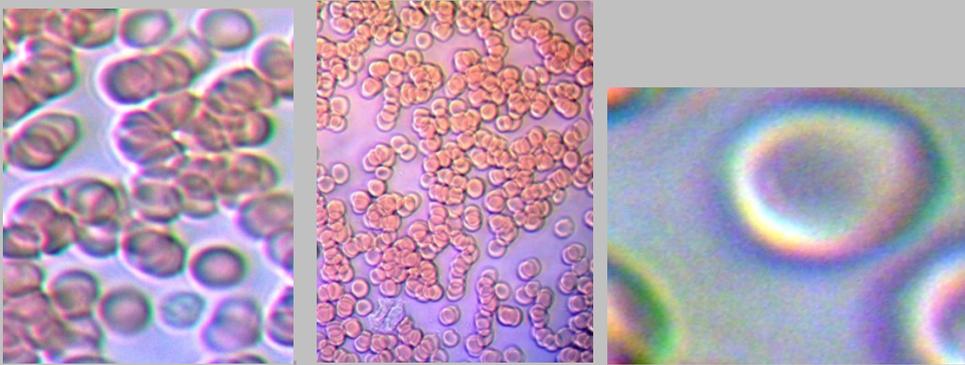
RESULTS:



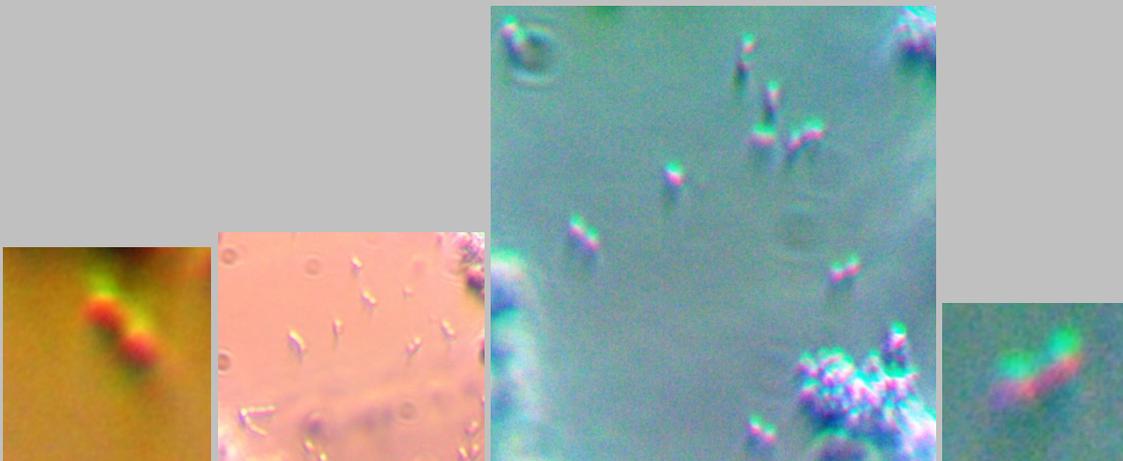
Diatoms 40x



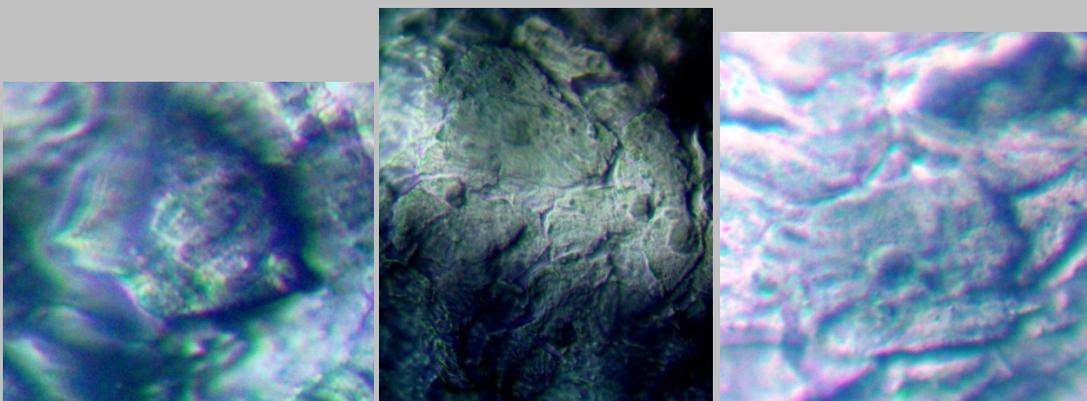
Mouth epithelial cells 40x



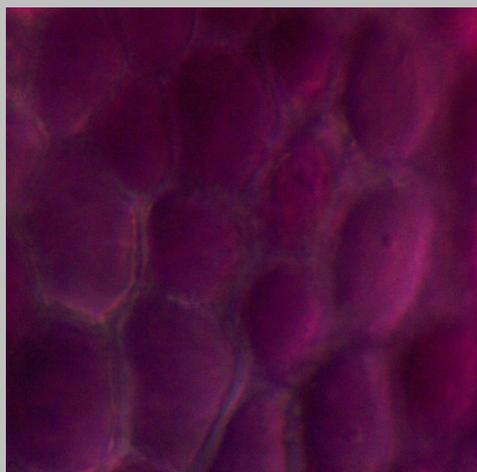
Erythrocytes 40x



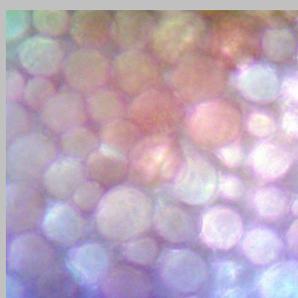
Streptococcus of yogurt 40x



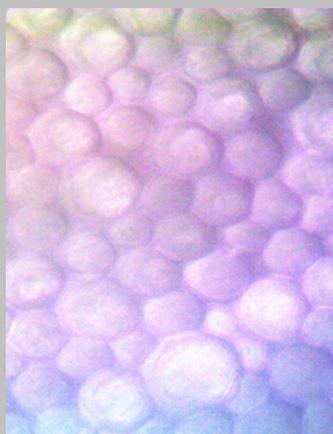
Hand epidermal cells 40x



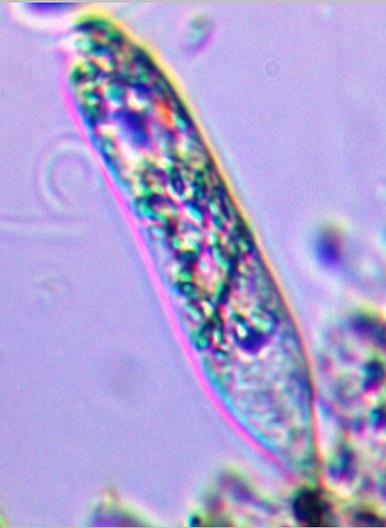
Red carnation 40x



Pink carnation 40x



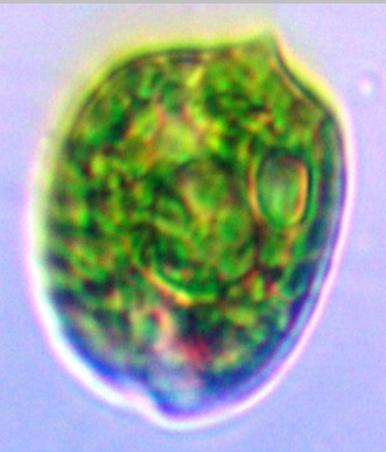
White carnation 40x



Astasia 40x oblique



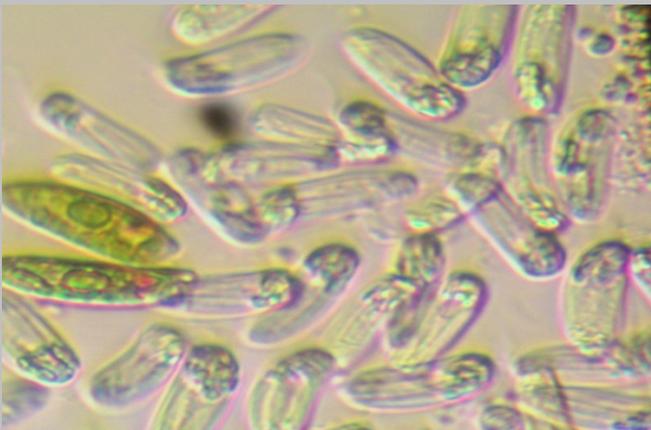
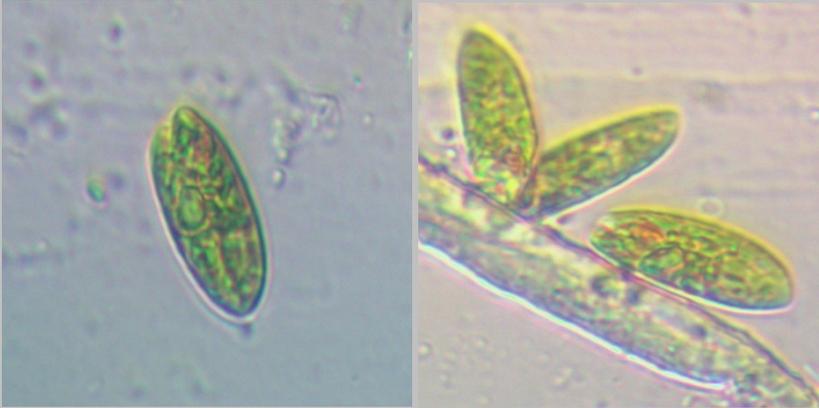
Probably *Schizosaccharomyces pombe* 100x this species of fungus was found upon a piece of rotting papaya.



Phacus 40x



A pond life worm 40x



Euglena 40x

CONCLUSION:

As it is appreciated in the photos, oblique illumination is another technique that can be applied with different kinds of samples, it is very easy to create because making an OBLIQUE ILLUMINATION FILTER would only take a few minutes. Here again imagination for the filters and for the samples is the limit.

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(Above in anti-spam format. Copy string to email software, remove spaces and manually insert the capitalised characters.)

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