Biology Curators Group Newsletter

Title: A Short Note on Preservatives the Identification Problem - A Possible Solution

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3 Filling the jars with water - even more disastrous for the specimens.

Alternatively they can use:

4 Leuco-basic fuchsin impregnated papers which go pink with formalin and other aldehydes (including curators' hands) which may be fine but can be messy, time consuming and the curator is still inhaling fumes from the discarded papers.

5 Use an LCD readout specific gravity meter - a small amount fluid is sucked into the meter using a rubber bulb and a precise readout of the fluid's specific gravity is obtained - fine for alcohols but it will not distinguish between low grade alcohols and formalin; the meter is expensive and slow to use.

6 The Simon Moore method (below). Although this also does not distinguish between low-grade alcohols (of which there should be none in your collection!) and formalin it has the advantage of being much faster, cheaper (home-made), much safer (no sniffing) and it's accurate!!

You will need: a dropping bottle with reservoir and mapping pins of assorted colours with heads small enough to fit into your dropping bottle reservoir.

1 Make up a range of those preservative solutions for which you will be testing.

2 Remove heads of red, yellow and blue pins using pliers (these colours are not obligatory!).

3 Test flotation of pin heads in solutions and replace pins (point first) into pin heads to weight them.

4 Trim off pins to various lengths so that some will float, some will sink in the various solutions: eg yellow has no pin, red has half a pin, blue has pin right through.

5 When each pin has been trimmed to correct weight, push the remainder of the pin into the head.

6 Put weighted pin heads into bottle's reservoir.

7 Test - suck up fluid into reservoir, give a shake to get rid of any adherent air bubbles, note the distribution of floaters and sinkers:

8 Yellow will float below 55% alcohol and in 10% formalin, it sinks in 60-80% alcohol; red will float in 30% alcohol and 10% formalin, it sinks in 50% and 70% alcohol; blue floats only in formol-glycerin.

9 A simple method of just distinguishing between 70% alcohol and formalin will only require one red ball - floats in formalin, sinks in alcohol (if strength greater than 55%).

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A SHORT NOTE ON PRESERVATIVES THE IDENTIFICATION PROBLEM - A POSSIBLE SOLUTION

During the course of a one year, externally-funded conservation project in the Hunterian Museum (Zoology Section) in Glasgow, work was undertaken to address a backlog relating to various parts of the collections, including the wet material. Some 2,000 jars were dealt with in the available time.

The main problem encountered in this project with regard to preservative was one of identification. Many curators rely on smell, but this was obviously not to be recommended where some of the jars contain formalin or unidentified, possibly toxic, fixatives or preservatives. There is a published method using a strip test to distinguish between formalin and alcohol, but it was found to be difficult, time consuming and expensive to make the strips up. The method used in this project to tell preservatives apart was more or less discovered by chance while labelling the jars.

It was found that a strip of Goatskin Parchment label (8mm x 20mm), when dropped flat on the surface of preservative behaved in different ways:

* Alcohol (down to about 30%) will soak through the paper immediately and the label sinks after a short time.
* Formalin (even at low concentration) repels the paper and the label will float on the meniscus for a long time, sometimes curling up at the edges.
* Phenoxetol is neutral, being mostly water, and the label sits flat on the surface for a time until the fluid slowly soaks through.

Although this method has not been rigorously tested, it never failed in use, and sometimes identified alcohol when the nose could not. It also identified the common situation where the preservative is mostly alcohol but with a little formalin residue from the fixing process (this mixture frequently fools the strip test method). With practice, it was also possible to recognise some other preservative types, eg alcohol with glycerine. At the very least, the method readily identified formalin which the nose should never be allowed near!

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LIQUID PRESERVATION - HOW LITTLE WE KNOW

There is a wealth of information in specialist books and journals on the liquid preservation of biological material, but very little of this concerns plants. Following the reorganisation of the science departments at the Natural History Museum in 1990 a newly-formed Curation Programme undertook the task of monitoring and improving methods of specimen conservation. In my role as Curator of Algae I had to decide the fate of the largest liquid-preserved collection in the department as well as manage other disparate holdings, such as pressed herbarium specimens,