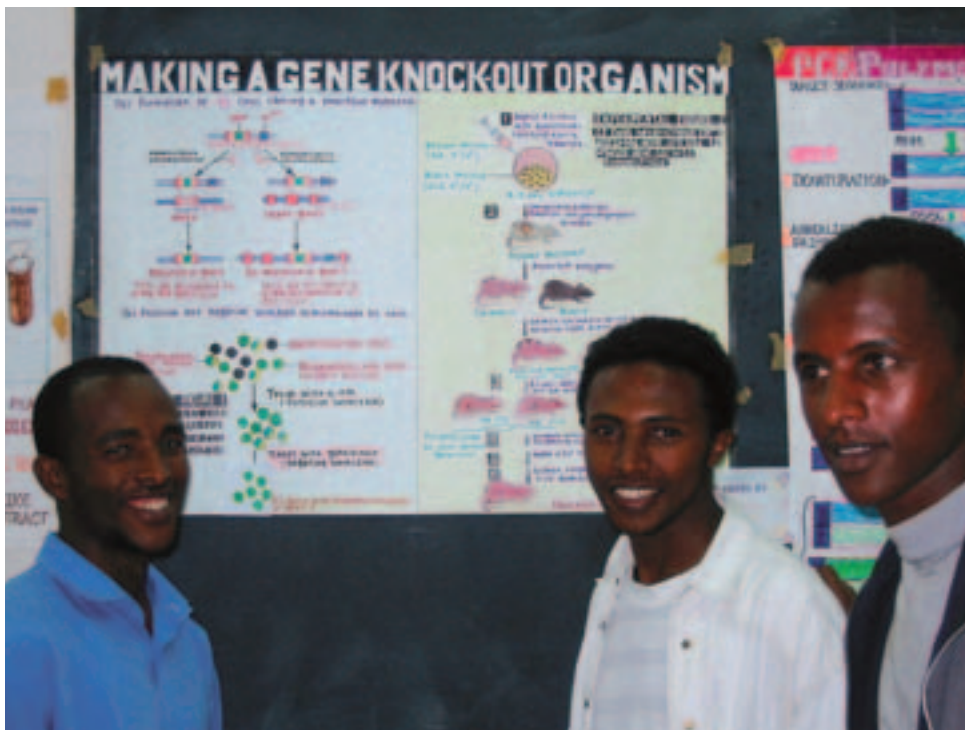


Education in Ethiopia

In the sixth in a series of articles, **Dr Jenny Search** reports on her continuing two-year voluntary service overseas placement at Debub University in Ethiopia



I HAVE SPENT THE summer break trying to prepare courses for the next academic year.

There will be new courses in microbiology and parasitology so I am collating some materials and preparing teaching aids that can be used after I have left. Last semester I taught a course about research methods and design in which the students had an assignment to prepare a poster presentation. Some of them are so good they can be used in other courses as teaching aids.

For microbiology, I printed out some colour pictures of the results of biochemical

tests to use in labs as we don't have all the chemicals necessary for the tests. I couldn't find a laminating service in Awassa so my colleague Mintesinot and I spent one afternoon sealing the pictures between two sheets of overhead transparency film with a candle, to try and protect them from the ravages of 60-odd students in a practical class!

In the next academic year we will have final year students for the first time so we are trying to prepare some small research projects for them. This is not easy as only one of the members of staff is actively involved in research

at the moment, so it's not just a question of tagging a student onto an already established project.

I came across one idea for a project whilst browsing through the microbiology books in the University library. I read about hot chilli sauce having antibacterial activity on raw oysters and thought I could apply the idea in a local context. One of the major ingredients of Ethiopian food is a mixture of spices called 'berbere'. This is a red powder made of crushed red chillies and other spices and used in almost every Ethiopian dish. I searched the internet for information and found out the chemical that gives chillies

their hotness, capsaicin, is reported to have an antibacterial effect. For example, Dorantes *et al.*, reported that capsicum extracts from various hot peppers inhibited the growth of *Listeria monocytogenes*, *Staphylococcus aureus*, *Salmonella typhimurium* and *Bacillus cereus*.

I tried out a preliminary experiment to determine if berbere had an antibacterial effect and to find out if it was worthwhile investigating further as a student project. After a failed first attempt I surfed the Internet further and quickly discovered that capsaicin is not soluble in water. So I tried again and

Far left: This photo shows three third year biology students and a poster about gene cloning that they made for the "research methods and design" course last semester

Left: This is me in the lab trying out an experiment to see if 'berbere' (the red powder in the paper cone) has any antibacterial effects

below: This shows me melting some overhead transparencies with a candle to protect the photo of some biochemical tests. I will use these in a microbiology practical class as a teaching aid, because we don't have all the chemicals necessary to carry out the tests

Below right: Clean and dirty 5 birr notes



observed that a 5% solution of berbere in glycerol or cooking oil inhibited the growth of *Staphylococcus aureus*. I also found that dried alcohol extracts from berbere and chilli peppers had an inhibitory effect. A favourite delicacy here is a dish called kitfo which is raw minced meat so my plan is for a student to look into the effects of berbere on bacterial growth in the meat. Kitfo is often served with other spice concoctions which can also be investigated. Interestingly, one of my colleagues told me that Ethiopians often feel some discomfort in their stomachs if they eat a meal that does not contain berbere!

Some other ideas Mintesinot and I have been discussing include: looking at antibacterial activities of preparations of traditional medicines, seeing if the paper currency here (which is often extremely dirty as you can see from the pictures of a new and used note above!) harbours any pathogenic bacteria and investigating some local beliefs such as squeezing lime juice on food stops you from getting food poisoning. The research may not be very sophisticated, we have to try and come up with projects that can be done here and now and that may have some relevance to the people of Ethiopia.



Further Information

- Dorantes, L, *et al.*, Antimicrobial activity of capsicum extracts against some pathogenic bacteria. Proceedings of the 16th International Pepper Conference, Tampico, Tamaulipas, Mexico. 2002

- www.neal-jenny.info

- www.vso.org.uk.

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