

“Extremophiles – plants or animals?”

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Professor Michael Danson of Bath University enlightened and enraptured his audience about extremophiles for amongst the micro-organisms they are thought to be some of the oldest forms of life on earth.

They live and thrive as their names suggest in the most harsh and extreme environments such as the Yellowstone National Park in the USA and other hot springs that are not simply scalding hot but are often laden with nasty, poisonous, gaseous, toxic chemicals. Others can be found beneath the ice sheets of Antarctica, in the driest of deserts and around volcanoes. Spectacularly, we know that deep in the oceans there are vents of mineral rich water that build the ‘Black Smokers’ with their tube worms, bacteria and mineral deposits.

How is it that life can prosper in such conditions? How is it that in Canada a species of frog is able to freeze solid all winter and yet thaw out in the Spring and hop away merrily; how can DNA which, for us breaks down in boiling hot water, exist above that temperature, and there are extremophiles in salt water lakes that grow so vigorously that they form ‘blooms’ on the surface. Think of the ‘red’ of the Red Sea.

The science of extremophiles involves the detailed study of the specialised enzymes they have developed. Then, having examined those enzymes, scientists explore ways of using them. Enzymes now make your whites whiter, and ‘stone-wash’ your jeans. Others get the last drops of oil from an oil well, and their fermentation ability enables them to convert waste into ethanol for the car. Modified enzymes will bleach pulp and paper and improve foods and drinks whilst others will improve and develop new pharmaceuticals.

All this is but a sample of a fascinating branch of science that has emerged as recently as the 1980’s and is transforming much of our lives. Doubtless science will give us much more.

Given on Wednesday 8th May 2013 at the Royal Agricultural college