

YOUR SOIL – THE FINAL FRONTIER?

by Mike Mason

The main contender for the final frontier appears to be space – indeed, that is the by-line for a famous TV series. Certainly space is vast and the results of investigations using various types of ever-more-powerful telescope often bring to light evidence which conflicts with earlier theories. Another final frontier, much closer to home, is the deep depths of the oceans. Many life forms remain to be discovered and, when new ones are revealed, they are often astonishing and beautiful.

However, another contender for the final frontier is the soil beneath our feet. Despite man's progress in acquiring knowledge about our environment it is astonishing how little we know about the myriad organisms which live in the soil. Apart from worms, slugs, beetles and other insects there are thousands of varieties of bacteria, viruses and fungi. They all form part of our environment in a really close and personal way.

It is impossible to remove every trace of soil from the food we eat – so down it goes, sometimes cooked, sometimes uncooked. There are hosts of bacteria in our stomachs which are essential to our processing of food. It is believed that some of those bacteria come from the soil we eat. There are some people who eat unwashed vegetables, such as carrots, in order to ingest healthy bacteria to aid digestion. I am not advocating that we all rush out into the garden and commence eating soil but you get my point. Small children are frequent ingesters of soil and I feel that primitive man also, wittingly or unwittingly, ingested a lot of soil. So it would appear that the bacteria, viruses and fungi in the soil are not very toxic to man, although some may be – but which?

We simply do not know, yet, the varieties of bacteria, viruses and fungi in the soil. There are hundreds of varieties of mycorrhizal fungi for example (the fungi which have symbiotic relationships with plant roots together with bacteria and supply plants with the nutrients and trace elements they need).

New Antibiotics

Once we do know a lot more about the bacteria, viruses and fungi beneath our feet, and have been able to extract and isolate particular types, research might lead to the discovery of new antibiotics or other pharmaceutical products of benefit to human health. We are talking about tens of thousands of new species waiting to be discovered. It seems highly likely that beneficial organisms will be discovered, especially since we have already been ingesting them for millions of years. (Using DNA sequencing technology developed for the human genome project, scientists are now extracting and analysing soil samples with the aim of discovering new antibiotics and pharmaceuticals – and applications for the agricultural sector.)

On my allotment I am ever-more aware of the value of the soil and the need to look after it. Weeding, de-stoning, composting, manuring and watering are all valid techniques for maintaining and improving the soil so that the crops we grow will be bountiful, tasty and healthy. I have written before about the avoidance both of digging and of man-made chemicals, which kill the friendly and essential mycorrhizal fungi mentioned above. I have been a “no-dig” gardener since the year 2000 (and have been chemical-free since 1973) and all my crops appear to grow well. All the bacteria, viruses and fungi in my soil are now living undisturbed and, hopefully, happy lives and providing the perfect environment for my crops. Long live the gardeners' final frontier!

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