

# Why do they put mint in toothpaste? Would garlic be better?

The aim of this practical is to investigate antibacterial properties of plants. It gives students experience of using microorganisms and aseptic techniques.

The students could just test mint and garlic to address the questions in the title of the activity or they could bring in a wide range of different plants to test. In the student book there is a list of plants that have been shown to have antibacterial properties.

*It is essential* that the plates are used for the investigation an hour or so after the agar has set, otherwise once the bacteria have started to grow they will be unaffected by the antimicrobial agent. Therefore it may be more suitable for students to prepare their own plates.

This is a core practical and can be used to highlight a range of experimental and investigative assessment objectives. The activity sheet asks students to write up the experiment and encourages them to address the objectives. Safety is an important aspect of this experiment and the need to

take precautions when undertaking any microbiology should be stressed. Guidance on microbiology is available in the ASE publication **Topics in Safety, 3rd Edition** (2001). Also useful is **Microbiology: an HMI Guide for Schools and FE**, HMSO, 1990.

The worksheet does not say what measurements students should make when they observe their plates. They should be encouraged to think about ensuring that they have valid results by making suitable and precise measurements. A clear area where the bacterial growth has been inhibited should surround each of the discs. The simplest measurement would be to use a ruler and measure the diameter of the cleared area. It is straightforward to compare the results of different treatments if the clear areas are perfect circles. If the diameter varies, one possibility is to measure at the widest point. For a more precise measurement the area of the clear zone would have to be determined. Students could suggest possible ways of doing this.