

Micro-organisms are tiny living things that cannot be seen by the naked eye. Despite their size, they can be used to make many valuable products such as antibiotics and alcohol. They can also be used to speed up chemical reactions (catalysts). Since large amounts of these products are needed they must be made in the most economical way, meaning that the micro-organisms need to work as hard as they possibly can.

Who understands micro-organisms and can get them to work optimally to make many products?

The Fermentation Scientist!

Meet Sani Gumede,
Fermentation Scientist
at the CSIR in Johannesburg
B Tech (Biotechnology)

...the biggest challenge of the job:

"The work is experimental. This means that things don't always work out how you had hoped!"

...career satisfaction:

"Seeing the economic and social impact that comes from finding a suitable micro-organism which eventually results in commercially successful products."

What does Sani do?

Once Sani's colleagues have found a specific micro-organism to make a specific product, Sani has to get the micro-organism to do the best possible job of making it. To do this, he starts by growing the micro-organisms in glass flasks in the laboratory. Different organisms like different temperatures, different "food", and different pH-levels and Sani has to get this recipe right. He then scales up the process to large fermenters and later to the huge scale that the factories will use.

What do I need to be a fermentation scientist?

Characteristics:

Creative, detail-driven, team player and patient

Important school subjects: Biology, Mathematics, Physical Science

Qualifications: B Tech (Biotechnology); BSc – Natural Sciences/Biological and Life Sciences/Biotechnology/Microbiology/Molecular and Cell Biology

Where can I get a job as a fermentation scientist?

Universities, distilleries, research organisations, some private companies

Related careers:

Microbiologist, Biotechnologist, Biochemist, Bioprocess Engineer



science and technology

Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA

... a common misconception:

"People think fermentation is just beer-making and do not know or understand the powerful industrial uses."

