

## NORWAY-SOUTH AFRICA RESEARCH PROJECT TPCP/CTHB STUDENTS VISIT NORWAY

Recently two masters' students of the Tree Protection Co-operative Programme (TPCP) and DST/NRF Centre of Excellence in Tree Health Biotechnology (CTHB), Gilbert Kamgan Nkuekam (Cameroon) and Joha Grobbelaar (South Africa) had the privilege of visiting Norway to work with the Norwegian Forestry Research Institute (Skogforsk) in Ås. This opportunity arose from a bilateral agreement between the Governments of Norway and South Africa. For Gilbert, this was the first time he had left the African continent to visit and work in a country in the Northern Hemisphere. The aim of this trip was to collect insect associated fungal pathogens from broad leaf trees such as *Populus*, *Betula*, *Salix*, and *Quercus*. This was also to expand on a previous survey conducted by Prof. Jolanda Roux in 2004. The fungi of interest in this project broadly known as Ophiostomatoid fungi include the genera *Ceratocystis* and *Ophiostoma*, genera that include species of important tree pathogens and that also cause sapstain and degrade of lumber. These fungi are thus of economic importance to the South African Forestry industry and indigenous South African trees.

Forests in Norway cover approximately 37% of the country's total surface area. The most important tree species include Norway spruce (47%), Scots pine (33%) and birch (18%). Species such as *Alnus*, *Salix*, *Aspen*, *Sorbus* and *Quercus* also occur naturally and are widespread around the country. However, very little research has been done regarding the biodiversity and pathogenicity of Ophiostomatoid fungi on broad leaf trees in Norway. Previous reports in this country are confined to conifers. Well-known examples include *Ceratocystis polonica* and *Ceratocystis resinifera* that are pathogens of Norwegian spruce (*Picea abies*).



During the first week of his stay in Norway, Gilbert inoculated, in their natural environment, some aspen and birch trees with fungi collected by Jolanda in 2004. This inoculation experiment was followed by field work over a two week period. Jolanda's previous surveys were restricted to a few communes near Ås and the border with Sweden. During this visit, **Gilbert (photo: left)**, **Joha (photo: middle)** and **Prof. Halvor Solheim (photo: right)** surveyed both the Southern and the Northern part of Norway. Samples were collected from log piles at sawmills ready for processing as well as from stumps of recently felled oak, birch and aspen trees. In the south they visited Tresnes,

Øydna, Salthaug and Lyngdal, while in the North; many localities in the Troms County were visited. Gilbert and Joha collected 640 samples from which they isolated three groups of Ophiostomatoid fungi.

Gilbert and Joha, apart from field work, spent the remaining period of their time in the laboratory (2 months in total for Gilbert and 10 wks for Joha). Gilbert extracted DNA from some isolates and did DNA sequencing while Joha made single spore cultures from *Pesotum quercus* for population genetic studies that she will continue later. In addition, Gilbert isolated fungi from insects collected with the guidance of Dr. Paal Krokene.

During the last week of August Joha attended the Baltic Forest Pathology congress held in Norway. Delegates from Norway, Sweden, Finland, Iceland, Lithuania, Estonia and Latvia were present as well as two from the Southern hemisphere, from FABI!, namely Joha and Dr Bernard Slippers. One and a half days were dedicated to presentations on forest research and diseases and managing major pathogens such as *Heterbasidion* and *Armillaria*, and a day was set aside for a field trip into a nearby national park. The setting was beautiful, pristine nature, forests as far as the eye can see and a conference centre in the mountains overlooking Norway's largest lake. In the evenings the delegates were treated to traditional food and drink and spontaneous singing from the Swedes and Norwegians.

The research visit to Norway by Gilbert and Joha was not confined only to field and lab work. It was also a privilege for these two students from Africa to visit and enjoy the country of the indigenous Sami people with its beautiful scenery. They found time to visit tourist places in Oslo, such as the Munch museum, the Viking ship museum and the royal palace of the king of Norway in Oslo. It was wonderful for Joha and Gilbert to spend time in Norway and they are very grateful for the warm reception they had in Ås and from the Norwegian people. In particular their thanks and appreciation go to Prof. Halvor Solheim for his guidance and patience and for taking the time on the field trips to show them the surrounding area and some popular tourist spots. Thanks also go to Dr. Paal Krokene and to the forest department of Bardufoss in the North for their assistance in the field. Last but certainly not least, the TPCP acknowledges the South African and Norwegian governments for supporting the project, through the NRF Bilateral Exchange Programme, that adds substantial value to the overall aims of the programme.