MAY 2022

Dear Readers,

In this month's newsletter:

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-A New Freeze Dryer for Preserving Neutrog's Microbial Collection

Our team are actively seeking the collection of soil samples from growers of a wide range of crops and production methods across Australia for our R&D department. If you would be interested in providing a sample, please use the contact links at the base of this email.

Kind Regards,
The Neutrog Team

Neutrog Meets with Ace Ohlsson and Prof. Brajesh Singh at WSU

At the end of April, members of the Neutrog team including R&D Manager Dr Uwe Stroeher, Neutrog's Managing Director Angus Irwin, and Helen Lovel and Julie Walker from our sales team met with staff and agronomists at Ace Ohlsson in Sydney for a presentation about our highly anticipated product, POPUL8.

Dr Uwe presented some of the research which has formed the basis of POPUL8 that contains 40 specially selected bacteria and fungi that have been identified, isolated and added for their specific purpose and beneficial characteristics.

Ace Ohlsson are part of the Elders network and have serviced clients across the New South Wales horticultural market for over 80 years with their expertise in plant nutrition and crop management.

Following the presentation, Angus, Uwe and Helen continued on to Western Sydney University to meet wtih Professor Brajesh Singh.

Neutrog have worked with Braj for a number of years on a range of projects. He is an internationally recognised expert in environmental microbiology, productivity in farming and ecosystem functions which obviously align with a lot of the work that Neutrog and Uwe do at Kanmantoo.

Uwe and Helen were talking to him specifically about product testing R&D projects currently underway at Neutrog, that relate to how our products impact plant and soil health.

For example plant growth stimulation, nutrient liberation and disease suppression.

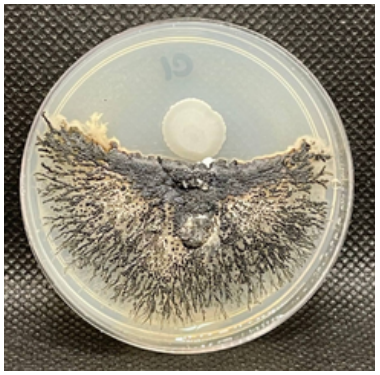
Inhibition, Solubilisation & Auxin Trials to Create POPUL8

The R&D team at Neutrog have spent a number of years examining and screening soils from around Australia seeking microbes capable of increasing nutrient use efficiency, plant health and disease suppression.

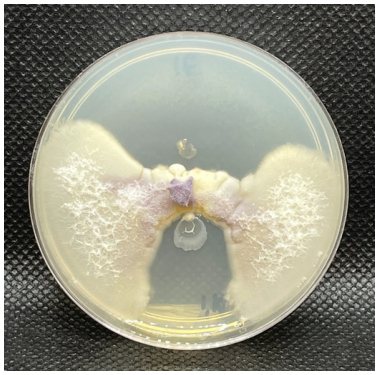
During our screening process we have found over 50 different isolates capable of reducing or in many cases completely supressing the growth of numerous fungal pathogens including Fusarium oxysprum, Rhizoctonia solani, Sclerotinia sclerotiorum and Collectrichum coccodes amongst others as well supressing the growth of oomycetes pathogens such as Pythium and Phytophthora. You may remember in our April newsletter we showed you on of these plates, showing the ability of bacterial isolate C1 to inhibit the pathogen Colletotrichum.

Our latest product, POPUL8, contains a wide variety of these specific purpose bacteria which have been individually chosen to maximise both the range of functions they are capable of performing as well as their ability to be effective in a broad spectrum of geographical locations and soil conditions.

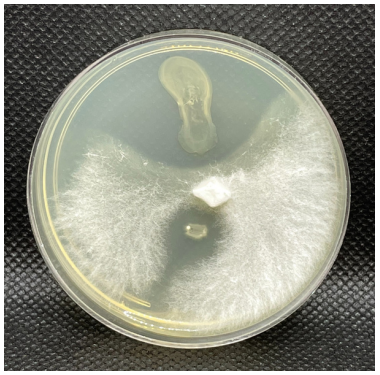
Below are actual examples of the tests performed by Neutrog's laboratory that demonstrate plant pathogen inhibition and suppression along with nutrient liberation:



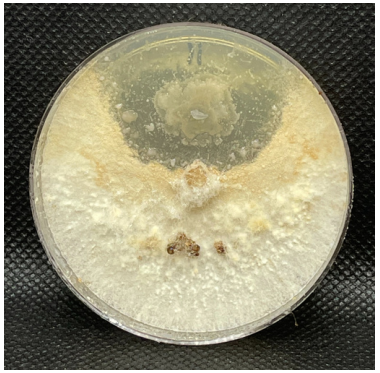
Inhibition of the pathogen Colletotrichum coccodes (Black Dot from potato) by bacterial isolate C1 but not C2 (which has been overgrown by the pathogen).



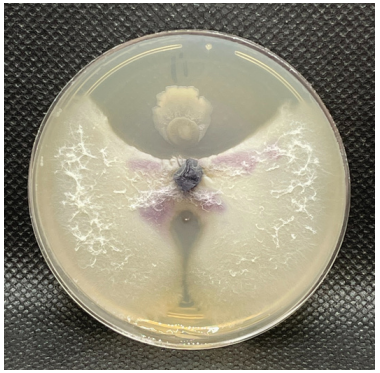
Inhibition of the pathogen Pythium (isolated from strawberries) by bacterial isolate iE and iA.



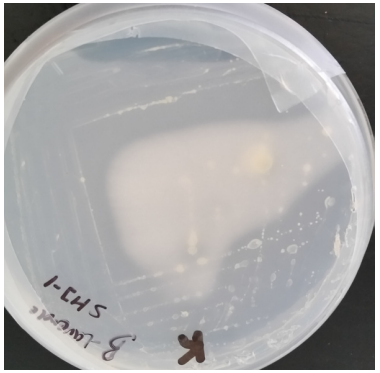
Inhibition of the pathogen Sclerotinia scerotiorum (isolated from tomato) by bacterial isolates i1 and i5.



Inhibition of the pathogen Rhizoctonia solani (isolated from tomato) by bacterial isolate i1 but not i5.



Inhibition of the pathogen Pythium (isolated from strawberries) by bacterial isolate i1 and partial inhibition by i5.



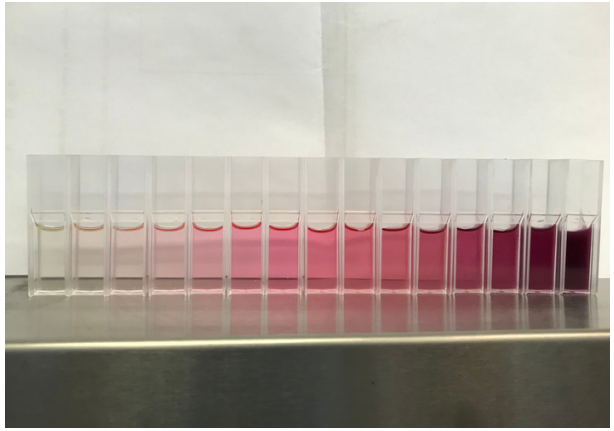
Liberation of potassium by bacterial isolate SHI/S3/I8/K.

POPUL8 also contains six individual Auxin producers.

Auxins are produced both by plants and by soil bacteria. In plants, auxins are produced in both the apical tip as well as in the roots. Auxins are perhaps best known for their role in root developement, but they also help in regulating the plants shape, stem elongation and their ability to bend towards the light.

Auxins produced by bacteria in the soil are valuable for their capacity to regulate bacterial growth and as a way for differing bacteria to communicate.

Plants take advantage of the auxin produced by soil bacteria to enhance their own root development, thus soil inoculants which contain auxin producing bacteria can boost and accelarate the plant root growth.



Fabric Composting Trials Underway at Neutrog

In conjunction with research that immediately impacts product development or improvement, the Neutrog R&D team also take on individual projects that look at the wider process of microbiology and composting.

One such project is currently underway which relates to the ability of certain fabrics to biodegrade in a compost/waste environment.

Fabric waste represents an increasing percentage of landfill and so forward thinking fabric manufacturers and fashion designers are now not only thinking about the sustainability of a garment's fabric construction (ie the chemicals used in its manufacture, its percentage of included recycled material etc) but also its ability to breakdown should it end up in landfill.

This particular project involves a South Australian based business, with a mindful approach to global fashion and the future demand for a more sustainable lifecycle for garments.

We look forward to telling you more about the trial and the brand behind it, in future newsletters.

A New Freeze Dryer for Preserving Neutrog's Microbial Collection

The collection of soil samples from around Australia and the isolation and identification of bacteria and fungi has become a significant part of Neutrog's R&D process which we look to preserve using a new piece of equipment recently commissioned in the laboratory known as a Freeze Dryer (Lyovapor L-200 Freeze Dryer).

Freeze drying, or lyophilisation, is a commonly used method for preserving a range of items including food and pharmaceutical product. In Neutrog's case, Head of R&D Dr Uwe Stroeher and Research Assistant Juhee Hada will be used it for preserving bacterial and fungal cultures that may be needed for future research.

This process involves placing a frozen sample under a vacuum to remove water or other solvents. The liquid within the organisms is turned into a gas without going through a liquid phase.

After being freeze dried, the dry microbes are stored in glass vials under a vacuum within the freeze drying unit. The microorganisms will be in a state of suspended animation that can be woken up and regrown even after many years have passed.

"This is best described as our very own 'bug bank'. The freeze drying of our microbial collection is essential to ensure that we have access to the same bacteria and fungi for many years to come." says Dr Uwe.

Watch the video below to see Dr Uwe demonstrate and explain how this new freeze dryer will be used here at Neutrog.

For more information about Neutrog products, please contact our team.

Neutrog products are also suitable for the home garden, and you can find out more by signing up to receive our monthly retail newsletter for stories from gardening experts, product profiles and seasonal fertilising guides for home gardens.

If you would like to receive this newsletter, please email marketing@neutrog.com.au

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