Health & Medicine | B Loedolff, S Peters, E Hunter, A Xonti & VM Vacu

Harnessing the health benefits of plants

Plant-derived medicines have been used by humans for thousands of years. Currently, there is much focus on phytocannabinoids, usually extracted from cannabis plants. However, these health-benefiting compounds can also be found in other plants. Dr Blankie Loedolff, Dr Shaun Peters, Ethan Hunter, Alukhanyo Xonti and Vincent Malizukiswe Vacu at Stellenbosch University are investigating the role of plants in developing new therapeutic compounds and enhancing their phytochemical profiles. In addition, the research team are exploring ways to enhance the existing health benefits of plants, such as microgreens, through biofortification.

Humans have used plants for medicinal purposes for thousands of years. Currently, there is much focus on phytocannabinoids, usually extracted from cannabis plants. However, these health-benefiting compounds can also be found in other plants. Dr Blankie Loedolff, Dr Shaun Peters, Ethan Hunter, Alukhanyo Xonti and Vincent Malizukiswe Vacu at Stellenbosch University are investigating the role of plants in developing new therapeutic compounds and enhancing their phytochemical profiles. In addition, the research team are exploring ways to enhance the existing health benefits of plants, such as microgreens, through biofortification.

Humans have used plants for medicinal purposes for thousands of years. Currently, there is much focus on phytocannabinoids, usually extracted from cannabis plants. However, these health-benefiting compounds can also be found in other plants. Dr Blankie Loedolff, Dr Shaun Peters, Ethan Hunter, Alukhanyo Xonti and Vincent Malizukiswe Vacu at Stellenbosch University are investigating the role of plants in developing new therapeutic compounds and enhancing their phytochemical profiles. In addition, the research team are exploring ways to enhance the existing health benefits of plants, such as microgreens, through biofortification.

Humans have used plants for medicinal purposes for thousands of years. Currently, there is much focus on phytocannabinoids, usually extracted from cannabis plants. However, these health-benefiting compounds can also be found in other plants. Dr Blankie Loedolff, Dr Shaun Peters, Ethan Hunter, Alukhanyo Xonti and Vincent Malizukiswe Vacu at Stellenbosch University are investigating the role of plants in developing new therapeutic compounds and enhancing their phytochemical profiles. In addition, the research team are exploring ways to enhance the existing health benefits of plants, such as microgreens, through biofortification.

Humans have used plants for medicinal purposes for thousands of years. Currently, there is much focus on phytocannabinoids, usually extracted from cannabis plants. However, these health-benefiting compounds can also be found in other plants. Dr Blankie Loedolff, Dr Shaun Peters, Ethan Hunter, Alukhanyo Xonti and Vincent Malizukiswe Vacu at Stellenbosch University are investigating the role of plants in developing new therapeutic compounds and enhancing their phytochemical profiles. In addition, the research team are exploring ways to enhance the existing health benefits of plants, such as microgreens, through biofortification.

Humans have used plants for medicinal purposes for thousands of years. Currently, there is much focus on phytocannabinoids, usually extracted from cannabis plants. However, these health-benefiting compounds can also be found in other plants. Dr Blankie Loedolff, Dr Shaun Peters, Ethan Hunter, Alukhanyo Xonti and Vincent Malizukiswe Vacu at Stellenbosch University are investigating the role of plants in developing new therapeutic compounds and enhancing their phytochemical profiles. In addition, the research team are exploring ways to enhance the existing health benefits of plants, such as microgreens, through biofortification.

Humans have used plants for medicinal purposes for thousands of years. Currently, there is much focus on phytocannabinoids, usually extracted from cannabis plants. However, these health-benefiting compounds can also be found in other plants. Dr Blankie Loedolff, Dr Shaun Peters, Ethan Hunter, Alukhanyo Xonti and Vincent Malizukiswe Vacu at Stellenbosch University are investigating the role of plants in developing new therapeutic compounds and enhancing their phytochemical profiles. In addition, the research team are exploring ways to enhance the existing health benefits of plants, such as microgreens, through biofortification.

Humans have used plants for medicinal purposes for thousands of years. Currently, there is much focus on phytocannabinoids, usually extracted from cannabis plants. However, these health-benefiting compounds can also be found in other plants. Dr Blankie Loedolff, Dr Shaun Peters, Ethan Hunter, Alukhanyo Xonti and Vincent Malizukiswe Vacu at Stellenbosch University are investigating the role of plants in developing new therapeutic compounds and enhancing their phytochemical profiles. In addition, the research team are exploring ways to enhance the existing health benefits of plants, such as microgreens, through biofortification.

Humans have used plants for medicinal purposes for thousands of years. Currently, there is much focus on phytocannabinoids, usually extracted from cannabis plants. However, these health-benefiting compounds can also be found in other plants. Dr Blankie Loedolff, Dr Shaun Peters, Ethan Hunter, Alukhanyo Xonti and Vincent Malizukiswe Vacu at Stellenbosch University are investigating the role of plants in developing new therapeutic compounds and enhancing their phytochemical profiles. In addition, the research team are exploring ways to enhance the existing health benefits of plants, such as microgreens, through biofortification.

Humans have used plants for medicinal purposes for thousands of years. Currently, there is much focus on phytocannabinoids, usually extracted from cannabis plants. However, these health-benefiting compounds can also be found in other plants. Dr Blankie Loedolff, Dr Shaun Peters, Ethan Hunter, Alukhanyo Xonti and Vincent Malizukiswe Vacu at Stellenbosch University are investigating the role of plants in developing new therapeutic compounds and enhancing their phytochemical profiles. In addition, the research team are exploring ways to enhance the existing health benefits of plants, such as microgreens, through biofortification.

Humans have used plants for medicinal purposes for thousands of years. Currently, there is much focus on phytocannabinoids, usually extracted from cannabis plants. However, these health-benefiting compounds can also be found in other plants. Dr Blankie Loedolff, Dr Shaun Peters, Ethan Hunter, Alukhanyo Xonti and Vincent Malizukiswe Vacu at Stellenbosch University are investigating the role of plants in developing new therapeutic compounds and enhancing their phytochemical profiles. In addition, the research team are exploring ways to enhance the existing health benefits of plants, such as microgreens, through biofortification.

Humans have used plants for medicinal purposes for thousands of years. Currently, there is much focus on phytocannabinoids, usually extracted from cannabis plants. However, these health-benefiting compounds can also be found in other plants. Dr Blankie Loedolff, Dr Shaun Peters, Ethan Hunter, Alukhanyo Xonti and Vincent Malizukiswe Vacu at Stellenbosch University are investigating the role of plants in developing new therapeutic compounds and enhancing their phytochemical profiles. In addition, the research team are exploring ways to enhance the existing health benefits of plants, such as microgreens, through biofortification.

Humans have used plants for medicinal purposes for thousands of years. Currently, there is much focus on phytocannabinoids, usually extracted from cannabis plants. However, these health-benefiting compounds can also be found in other plants. Dr Blankie Loedolff, Dr Shaun Peters, Ethan Hunter, Alukhanyo Xonti and Vincent Malizukiswe Vacu at Stellenbosch University are investigating the role of plants in developing new therapeutic compounds and enhancing their phytochemical profiles. In addition, the research team are exploring ways to enhance the existing health benefits of plants, such as microgreens, through biofortification.

Humans have used plants for medicinal purposes for thousands of years. Currently, there is much focus on phytocannabinoids, usually extracted from cannabis plants. However, these health-benefiting compounds can also be found in other plants. Dr Blankie Loedolff, Dr Shaun Peters, Ethan Hunter, Alukhanyo Xonti and Vincent Malizukiswe Vacu at Stellenbosch University are investigating the role of plants in developing new therapeutic compounds and enhancing their phytochemical profiles. In addition, the research team are exploring ways to enhance the existing health benefits of plants, such as microgreens, through biofortification.

Humans have used plants for medicinal purposes for thousands of years. Currently, there is much focus on phytocannabinoids, usually extracted from cannabis plants. However, these health-benefiting compounds can also be found in other plants. Dr Blankie Loedolff, Dr Shaun Peters, Ethan Hunter, Alukhanyo Xonti and Vincent Malizukiswe Vacu at Stellenbosch University are investigating the role of plants in developing new therapeutic compounds and enhancing their phytochemical profiles. In addition, the research team are exploring ways to enhance the existing health benefits of plants, such as microgreens, through biofortification.
times more than in mature plants. Since phytochemicals accumulate in response to stress, placing plants under controlled environmental stressors, such as light and temperature, can artificially enhance the production and accumulation of these bioactive compounds. This is often called biofortification. Older plants have time to adapt to their environment and rely on alternative stress response pathways.

The team at Stellenbosch University aimed to augment the accumulation of phytochemicals in microgreens (kale and radish) by exposing them to very high levels of light. The seedlings were exposed to 16 hours of light at 70 µmol photons m⁻² s⁻¹ (a measurement in a normal- or high-light environment.

In a similar study, Dr Leodloff and colleagues previously demonstrated that it was possible to biofortify wild rocket with an antioxidant compound called resveratrol, a phytochemical that had not previously been documented in this plant. But how does this translate to visible health benefits? The researchers also showed that human genomic DNA was protected from oxidative stress if high concentrations of plant extracts were used, regardless of whether they were exposed to normal- or high-light intensity. However, it is important to bear in mind that this was done using human DNA in the laboratory, rather than using cells derived from humans, or human subjects.

THE MINI AND MIGHTY

Microgreens, previously thought of as a culinary garnish, are now becoming a speciality crop with proven health benefits.

Dr Leodloff explains that the goal of the research team is to develop sustainable strategies to produce super-charged microgreens. By using controlled environmental stressors, the researchers hope to biofortify microgreens, resulting in even higher levels of phytochemicals that are beneficial to human health. These functional foods have enhanced antioxidant abilities and have the potential to reduce the risk of disease. Since this team also exudes communication to children, a fun-filled read for the whole family on functional foods can be found in Frontiers for Young Minds.

Microgreens, previously thought of as a speciality crop with proven health benefits, are now becoming a speciality crop with proven health benefits. Older plants have time to adapt to their environment and rely on alternative stress response pathways.