

More *Methylglyoxal* proves a sweet treat...

» Australian certified organic medi-honey exceeds the world's highest antibacterial expectations.
By Jaime Newborn

If you've never thought of honey as a medical treatment with the potential to kill harmful bacteria, strengthen immune systems, and aid in the recovery of everything from strep throat, to skin wounds and scars, you're about to think again.

From the end of this year a honey company, certified with ACO (Australian Certified Organic), will make available a medicinal grade honey, derived from a native plant, and containing more potent levels of non-peroxide active antibacterial activity than has been recorded in any other product currently on the market internationally.

The active component in the honey - which will be marketed under the trade name '*Berringa Honey*' - is the compound Methylglyoxal (or MG).

Berringa Honey is a subsidiary company of the *Australian Organic Honey Company*, which for the past two decades has produced (and will continue to produce) high grade Eucalypt honey for food consumption.

MG is naturally formed in honey when the sugars' glucose and fructose are

converted into intermediate products as a result of chemical reactions by green photosynthesising plants.

Peter Woodward, founder of the Australian Organic Honey Company says the company's foray into medicinal bee-keeping came about after extensive research revealed extraordinary levels of antibacterial activity in honey from an Australian native plant.

"After six years of independent research on the medicinal qualities of a honey produced from a specific native plant genus (*Leptospermum Polygalifolium*, a species of tea tree) we realised we had found something in Australia that was incredibly unique - a honey product with higher levels of MG activity than has been verified anywhere else in the world!" he says.

Prior to the discovery, antibacterial activity in honey had been predominantly marketed in *Manuka Honey*, a product sourced in New Zealand and sold for its medicinal benefits worldwide.

The term 'UMF' or 'Unique Manuka

Factor', was coined to describe the antibacterial activity stemming from MG that was unique to the honey. UMF is now an accepted description used to identify the levels of MG 'magic' within a product and therefore its potential to be used medicinally.

Now, it seems Australian organic honey produced from native plants has more magic than most.

Giles Tilley, CEO of Berringa says what excites him most about his honey is that it has consistently recorded an unheard of level of MG activity.

He says Berringa honey derived under a certified organic system from the *Leptospermum Polygalifolium* plant records consistent levels of MG activity of over + 1,600 mg/kg - almost double that reported by Manuka honey, and well above the antibacterial levels found in other honeys and common foods.

Manuka honey (derived from the plant *Leptospermum scoparium*, also of the *Leptospermum* genus) has reported MG concentrations ranging between 30 to +700mg/kg, with research from the University of Dresden revealing commercial honey brands usually have MG levels ranging from just 1 - 8 mg/kg.

MG has also been reported in concentrations from 3 to 11mg/kg; in fermented foods such as milk products, beer and wine and is formed during coffee roasting in amounts 23 to 47 mg/kg.

Mr. Tilley says the difference comes down to plants.

"Berringa honey is solely derived from bee activity around the Australian native *Leptospermum Polygalifolium*.

"The plant occupies coastal habitats and is used for honey production in only a small area from the north coast of New South Wales to southern Queensland in Australia". (*Leptospermum Polygalifolium* grows uncultivated from the south coast of New South Wales to Cape York in Northern Queensland).

"Hives are placed only in the vicinity of the flowering genus and harvested honey is not mixed with pollen from any other varieties. And because of our certified organic status, we keep well away from chemically treated trees."



Leptospermum Polygalifolium, a species of tea tree now used in the production of medicinal honey with the world's highest recorded antibacterial activity.

He says international research has proven that the potency of the medicinal properties of honey increase and decrease depending on its region of collection.

In the UK, leading microbiologist and honey research specialist Dr. Amanda Tonks (Department of Microbiology at the University of Cardiff, Wales) has found MG production in honey can be enhanced two to three fold depending on the plant of origin, and environmental factors of production including salinity, drought and cold stresses.

The new medi-honey is attracting interest for possible treatment of gastro-intestinal disorders, serious wounds, and other skin, lung, oral and ophthalmological (eye and related) diseases.



"Interestingly, the levels of MG present in Berringa honey samples (produced from a very similar floral source to Manuka honey) were found to be equivalent or higher than that previously described for Manuka honey, indicating its potential as an antibacterial agent," observed Dr. Tonks in a recent report.

"Recent research indicates that (Australian) Berringa honey possesses a wide range of antimicrobial and immune stimulatory activity... dependent on region of collection."

What health benefits can you expect from Methglyoxal (MG)?

Because of MG, honey is attracting interest from medical professionals for possible treatment of everything from gastro-intestinal disorders, to a wide range of serious wounds, and other skin, lung, oral and ophthalmological (eye and related) diseases.

And according to Mr. Tilley, that could be just the tip of the glucose-coated iceberg.

For starters, he says the external healing properties of honey have long been

recognised and used by vets.

"Vets apply a honey treatment to stem bacterial equine disease when a horse gets a scratch or wound, which could otherwise result in death from infection.

"Now health professionals are more actively recognising its immense potential in the treatment of human ailments."

Mr. Tilley says honey with a level of MG activity high enough to kill harmful or pathogenic bacteria is ideal in the treatment of inflammation and strep (*streptococcal*) or sore throats. "It has

even been used to help cancer patients who suffer from inflamed oesophaguses, or throat and mouth blisters as a result of chemotherapy treatment," he says.

And he says while medi-honey is no silver bullet, it *has* been connected to a strengthened immune system.

"This means that theoretically people who take medicinal honey regularly have a better capacity to ward off or lessen the severity of colds and flu's while keeping their energy up." (A US study (Memphis) reported medicinal honey raised energy levels by 5 – 6% in participants in a research trial this year.)

He says honey with the highest levels of MG activity can be used as a safe and natural external application " - for example, to treat damaged tissue or scarring; as a burn or wound dressing; or for use after accidents and operations".

He says because the honey is so versatile, the company has already had some wide ranging inquiries. Interest to date has come from large chemist chains, equestrian units, and French cosmetic companies to name a few.

"The US army uses medicinal honey in conflict areas in their burns unit, as it's a cheaper and more natural alternative to strong lab-derived antibacterial applications," says Mr. Tilley.

"However, I'm particularly interested in the work of Barry Marshall and Robin Warren (*Noble prize winners for medicine 2005*) on bacteria which causes ulcers. Since our honey has such a strong antibacterial ability, there is the possibility it could be used in the incidence of ulcers, to prevent acid reflux (when acid from the stomach flows up into the throat), and to address bacterial gastro problems."

MG-high honey on shelf

Berringa honey was launched officially in London this June and is expected to be available in health stores and chemists from the end of September 2009.

Mr. Woodward says substantial research will be conducted to ensure honey with very high MG levels remains safe for human consumption before it is released.

He says until then, honey with exceedingly strong concentrations of MG will remain restricted for external application and cosmetic use.

The first medi-honey to be released for human consumption will contain MG levels of around 550MG/kg in a 175g container.

It will also be certified organic – a factor Mr. Woodward says remains important.

"It helps eliminate concerns surrounding the effects of synthetic chemicals on the natural chemical reactions of the plants, and the health of our bee colonies," he says.

"It also avoids the potential build up of toxins in the final product."

He says strong market interest has been expressed following Berringa's launch in both the UK and Japan. – "The response has been phenomenal. Like our Eucalypt honey we estimate that the bulk of our medi-honey market will be export." (Currently, the Australian Organic Honey Company exports 95% of its product to Europe and the UK.)

"It will be supply, not demand that is our concern!"

He says the company is thrilled to be involved in the investigation of antibacterial honey at such a critical stage of its development.

"We see enormous opportunity in what we're doing – in both a medical and therapeutical context. And if we can help contribute to the body of research on the benefits of medical honey along the way, that's fantastic."

For more information visit the website at www.berringahoney.com.au. 