

Super *Mint*



A **POTENT STRAIN** OF THE
COMMON MINT PLANT
DEVELOPED AT THE
UNIVERSITY OF GUELPH
MAY HAVE THE POTENTIAL
TO HELP **COUNTER JOINT**
INFLAMMATION.

[STORY BY LINDSAY DAY]



When a handful of horses at the University of Guelph managed to escape from their paddock one night last spring, they didn't travel far before they happened upon a research plot of mint being grown by the University's Department of Plant Agriculture. The horses were not long gone before their absence was discovered and they were safely returned to their pasture, but the hoof prints and poop piles they left amongst the rows of mint suggested they were quite interested in this particular crop — as too are the University's researchers.

It's the same species of spearmint you'd find at home in your herb garden, but this particular strain has a decade of research and development behind it. And today, all that work appears to have been worth it — this mint is showing promising results as a supplement to treat joint inflammation in horses.

Mint is a common natural source of **rosmarinic acid (RA)** — a chemical compound that has antioxidant and anti-inflammatory properties. Among mint varieties in the wild, though, levels of the substance can vary greatly from plant to plant. Of 1000 plants, perhaps only two or three might have high enough levels of RA to be of medicinal interest.

What research scientists at the university have managed to do — through a careful process of screening and selection — is to isolate a genetic strain of the mint that naturally and consistently overproduces the medicinal compound. "What we have is a spearmint plant that is essentially identical to the wild type, except that it produces 20 times higher levels of rosmarinic acid," explains Laima Kott, Ph.D., the lead researcher on the project.

The mint is not genetically modified — so it avoids the technical complexities and regulatory matrix associated with Genetically Modified Organisms (GMO's) — and

it is easily grown. The high levels of RA also mean less of the dried plant matter is required to deliver the potential beneficial effects. "It really gives us a new lease on using this stuff," says Kott. "You can just grow it in a field rather than trying to make a complex molecule like rosmarinic acid in the lab, which is difficult and expensive to do."

When University of Guelph graduate Wendy Pearson, Ph.D. was contacted to help write a grant proposal to secure research money to study the effects of the mint in horses (and the funding came through), she decided it was time to leave her consulting job and seize the opportunity to pursue her passion. "Sometimes you just have to take that 80 per cent pay cut," she laughs.

With horses of her own at home, and having studied veterinary applications of medicinal plants in her Ph.D. work, Pearson is keenly aware of the value of this sort of research to the equine industry. "Arthritis is a common cause of lameness in horses and there are many well-known adverse effects from the more conventional types of drugs we use to treat it. So there's a real place for the development of new natural products like this that can help mitigate some of the symptoms, but hopefully with fewer adverse effects."

The first stage in the research study involved looking at the effect of the mint on cultured samples of cartilage tissue *in vitro* (not in a live animal). The cartilage was subjected to chemicals that cause it to behave arthritically and the effects of the mint were measured.

"The results were extremely good — to the extent that none of us could really believe what we were looking at," says Pearson of the study that was published in *The BMC Journal of Complementary and Alternative Medicine* earlier this year. "There was almost a complete inhibition of PGE2, which is one of the chemicals you are try-

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ing to block when you take aspirin or feed your horse bute. We also saw a protective effect on cartilage structures — when we pretreated the cartilage with mint, it didn't break down nearly as quickly."

The next step was to see what the mint could do in a live animal. Eight horses with experimentally induced low-grade inflammation in their knee joints were fed a controlled diet, with half the horses receiving the dried mint leaves as a top dressing mixed in with their grain. "We looked at a lot of the same outcome measure that we looked at in the in vitro model and we found that when the horses received the mint as part of their normal diet, the inflammatory changes in the biochemistry of the joint were strongly inhibited," says Pearson.

She believes the results are significant. "There are a lot of misconceptions out there, that herbal stuff is just snake oil, but in reality, when you think about it, where do so many of our drugs come from?"

"According to the World Health Organization bulletin, 80 per cent of the world's medicines are derived at some point from plants. And even in North America, 25 per cent of all of the drugs that you get at pharmacies come directly from plants. So it really does make sense that you would have this type of

bioactivity, and it's really nice to be able to measure that in a study like this."

Pearson admits the mint is not going to provide a cure for osteoarthritis, but believes it does provide another level of support that we might not be getting with conventional drugs alone. Plans for a clinical trial with people suffering from knee osteoarthritis are already underway (where patients will be drinking herbal mint tea). Pearson would also like to see a clinical trial with horses, and maybe even dogs too, who could also benefit from the treatment.

So would a horse owner be able to get the same benefits by feeding their horse regular mint? Pearson doesn't think so. "We tested a regular mint in the in vitro experiment, and we didn't see any effect."

The good news? With discussions underway between the University and companies interested in commercializing the product, Pearson expects it should be on the market sometime in the next 6 to 12 months. **■**

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