PHYTOmed
medicinal herbs ltd.

KIWIHERB

Phytomed

- Founded in 1998
- Two brands – different customer types:
- Phytomed – practitioner only
- Kiwiherb – retail brand
- Core Purpose:

To enhance people's health and wellness through the manufacture of effective, herbal medicines, capturing the benefits of New Zealand sourced raw materials.

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PHYTOmed
LIQUID EXTRACT
MADE FROM DRIED PLANT
KAWAKAWA
Leaves
Macropiper excelsum
1 in 2
MANUKA
herb
ECHINACEA
Root Blend 1
Organically grown
1 in 2
BILBERRY
fruit
Vaccinium myrtillus
1 in 1
PAEONY
root
1 in 2
COLEUS
Root
SHATAVARI
Root
1 in 2
ELECAMPANE
Root
organically grown
Inula helenium
1 in 2
GINGER
Root
organically grown
Zingiber officinale
1 in 2
LAVENDER
Flowers
Lavandula offinicalis
1 in 2
CORYDALIS
Tuber
Corydalis ambigua
1 in 2
KANUKA
Herb
Kunzea ericoides
1 in 2

Phytomed Milestones

- ✓ September 1998 – sold first Phytomed herbal extracts for practitioners
- ✓ Launched first OTC product under *Kiwiherb* brand in 2000
- ✓ Moved to new premises in 2001
- ✓ Obtained certified organic certification for *Kiwiherb* range 2001
- ✓ Obtained GMP Certification in 2007
- ✓ 2012 - Commenced exporting of *Kiwiherb* range to Australia
- ✓ Moved to larger purpose-built premises April 2013
- ✓ Pilot herb farm project, 2016-2017

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Key goals

- Incorporation of NZ native plants and organic herbs
- Ethical sourcing & adoption of sustainable business practices
- Validation of efficacy through clinical research
- Build a global, intrinsically New Zealand brand of herbal health products
- Provide effective, safe, and ethically-produced treatments or preventatives, to a wide range of common health conditions

Quality Assured

- Committed to producing herbal medicines of the highest quality
- Developed rigid quality assurance procedures which have enabled us to become a Good Manufacturing Process (cGMP) certified facility

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Why GMP?

- A requirement in most international markets
- Herbal medicines are MEDICINES – and product quality assurance & safety, paramount
- No industry grows into a major export earner without a robust regulatory framework

Echinacea (Echinacea purpurea)

Why natural health products?

- Aging populations
- Budgetary constraints by governments
- Increasing costs of new drugs & mainstream medical treatments
- Increasing concerns around drug safety
- Increased evidence basis of efficacy, of many natural health products (particularly phytomedicines)

New Zealand's Strategic Advantages:

- Unique combination of geographical, soil & climatic attributes
- The ability to grow & produce NHP's whose bioactivity parameters rank them in the top end of the scale in terms of comparative quality with those produced elsewhere
- Strong scientific base and R&D support capabilities of our agro-horticultural industries and life sciences network
- Expertise which is easily extended to 'new' types of horticulture and innovative natural product development

Kawakawa (*Macropiper excelsum*)

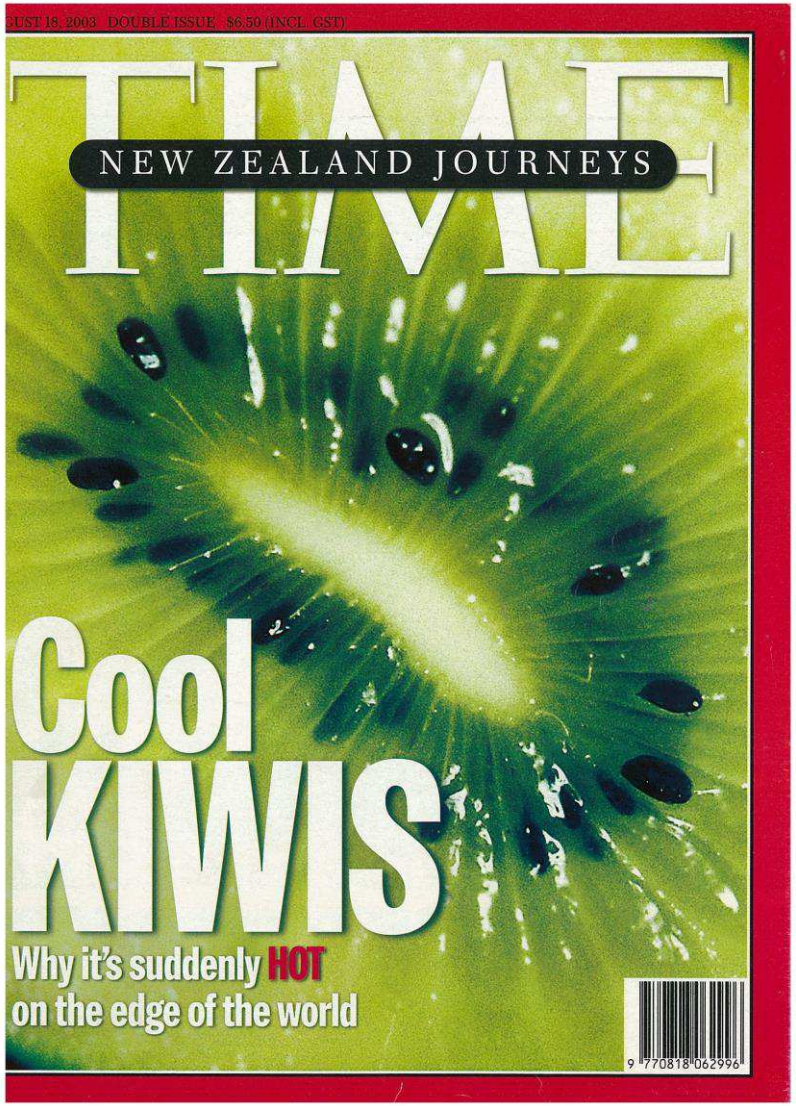
NZ Opportunities

- Our ‘clean and green’ image ideal for marketing natural health products offshore
- Emerging trends towards more plant-based diets and wellness lifestyles
- Future industry development needs to involve increased supply of local ingredients
- ***NZ has much potential to greatly increase exports of premium-priced, value added NH products*** *(L.E.K. Report on the NZ Natural Products Industry, May 2009).*
- Ingredients and/or Brands?

Ginkgo *(Ginkgo biloba)*

American ginseng (*Panax quinquefolium)*

Biotechnology vs NHP's?



SECRETS OF THE SEA

Already a gamble, the work of bioprospectors is threatened by Maori claims to the country's natural treasures

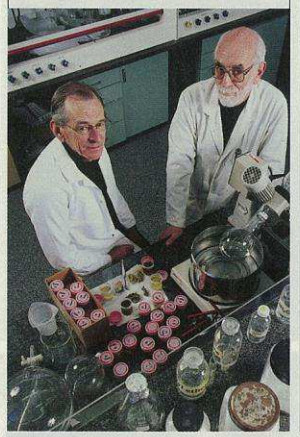
By DANIEL WILLIAMS CHRISTCHURCH

ON THE FOURTH FLOOR of the chemistry building at the University of Canterbury, in Christchurch, is a freezer the size of a child's bedroom. Locked inside are some 10,000 samples of sea life collected off New Zealand or from neighboring waters during the past 20 years. Each creature has done its bit for science, having undergone a molecular strip search aimed at finding compounds that could be used to make new and better anti-cancer drugs. "We know jolly well the odds are against us," says Murray Munro, who with John Blunt heads the university's Marine Chemistry Group. But the possibilities draw the two sexagenarian professors into the lab each day to peer at extracts from the latest batch of specimens dropped off in jars and buckets.

In looking to the sea rather than the forests for answers to one of mankind's biggest killers, Blunt and Munro work in a new branch of what's called bioprospecting—searching nature for bioactive material that could be turned into something valuable, usually pharmaceuticals or herbal medicines. Like others around the world exploring the depths with the same goal, Blunt and Munro regard the sea as an untapped source of goodies.

Paradise for bioprospectors is any place teeming with life—and about 40% of all known species live in the sea. (Plants and fungi, which comprise roughly 20% of all living organisms, have yielded most of the life-saving and pain-relieving drugs—quinine, penicillin, morphine—because until recently the bush was the only place researchers were looking.) All the better for bioprospectors, if an area supports an unusual mix of life—"because if you want to find novel compounds," says Munro, "you go to [places of] novel biodiversity." With a coastline stretching from sub-Antarctic to subtropical latitudes, New Zealand's waters are a bioactive smorgasbord, packed with the kinds of species that excite the pair most: sponges, tunicates (sea squirts) and bryozoans (sea mosses). It's likely that the cures for most diseases are in nature, waiting to be discovered. But the right of New Zealand organizations to look for them—no questions asked—is being challenged by indigenous groups.

These groups' ancestors were the country's first bioprospectors. Though there is some argument about this, Maori healers (*tohunga*) were probably using plants to make medicines for centuries before British settlers began arriving in the late 1700s. Much of that old knowledge has been lost, and nowadays most Maori rely on western medicine. Even so, many object to researchers using nature for experiments in fields like bioprospecting and genetic modification. To these Maori, cutting open living things or mixing the genes of the same or different species "is analogous to . . . experiments on one's own family members," says Maui Solomon, counsel for three of the six tribes that lodged the ongoing Wai 262 claim, which reasserts Maori ownership of native flora and fauna. "While this may be regarded by some as emotional blackmail . . . the issue boils down to one of respect: respect for the fact that Maori have a special relationship with their natural world."



TAG TEAM "What we've achieved together is far more than either of us could have done on our own," says Blunt, left, with Munro

Though bold, Wai 262 has a legal basis. The Treaty of Waitangi, signed by chiefs and Queen Victoria in 1840, passed governance to the Queen but gave Maori "chieftainship over their lands, villages and all their treasures." That sweetener—open to interpretation—has gradually been eroded by subsequent legislation. The Continental Shelf Act 1964, for example, exerts Crown jurisdiction over precisely what Blunt and Munro are searching for: sedentary organisms on the sea floor.

Wai 262 isn't moving much faster than one of the professors' sponges. Lodged in 1991, it's become bogged down in the Waitangi Tribunal (a quasi-judicial body which investigates claims by Maori under the Treaty and makes recommendations to the Crown). But few observers are ruling out a pro-Maori verdict, which could cripple New Zealand's bioprospecting industry were tribes to start demanding up-front payments for access to land or sea.

Such demands could be one consequence of a successful claim, says barrister Solomon. Another could be that Maori would become entitled to share in drug royalties. "But some are saying simply, 'Look, if you're wanting to mine our knowledge [of the natural world], then come to us, talk to us,'" Solomon says.

For now, Blunt and Munro press on. Thoughtful and urbane, they're not looking for a fight and point out that their work started more than 10 years before Wai 262 was filed. They don't get wet any more—that task falls to professional divers and some of the professors' students, who've done weekend scuba courses to extend their learning beyond the lab.

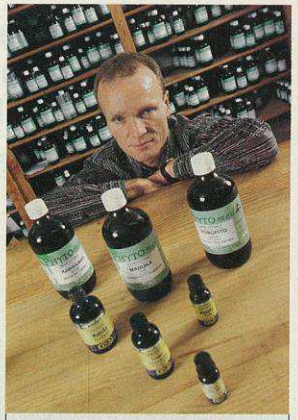
The professors focus on invertebrates because these are most likely to possess bioactive compounds. Way down in the evolutionary process, these creatures can't move and are often soft of body. So how do they defend themselves? "With chemical defense," says Blunt. "And if these chemicals are active against other living organisms, we try to tap into them, find out why and perhaps turn them to our advantage."

It's a numbers game. From 10,000 samples, Blunt and Munro have isolated more than 100 bioactive compounds, from which perhaps one—and they stress perhaps—will make it as a drug in the $300 billion-a-year global pharmaceuticals market. They have three compounds in preclinical trials with the Spanish drug company PharmaMar: one from a sponge plucked off the coast of Kaikoura, near the top of the South Island; one from a tunicate gathered further north; and another—the one they're most hopeful about—from a sponge first picked up during a dive in Antarctic waters in 1989.

"A valuable bioprospecting discovery . . . can be worth many millions of dollars if it ends up contributing to a commercial product," says a recent New Zealand Government discussion paper. The government invests an estimated $NZ5 million anually in the field, but most of it is going into the wrong kinds of bioprospecting, argues Phil Rasmussen, managing director of the Auckland-based Phytomed Medicinal Herbs. Lack of results so far—there's not a single drug in New Zealand's bioprospecting cabinet—has helped convince Rasmussen that bioprospecting aimed at drug development is "fundamentally the wrong objective" and that "some fairly serious [funding] mistakes have been made."

Even if a local group found the ultimate anti-cancer compound, New Zealand's small economy couldn't afford the colossal costs ($200-500 million) of bringing it to market. And if you can't afford all the costs, you don't get all the benefits. The Madrid-based PharmaMar will be the big winner if one of Blunt and Munro's three promising compounds makes the grade. The professors say they couldn't have continued their work on public funding alone. "We do this [research] in an attempt to find out what is in our environment that could be of value to humans, to medical science," says Blunt. "But we also have to be pragmatic and say that in order to continue, we now have to have some tags."

What concerns Phytomed's Rasmussen is not just the surrendering of intellectual property to foreign companies, but the way research into herbal medicines suffers because of the government's preoccupation with drug development. Where marine bioprospecting is largely random, many of his company's remedies started as hunches inspired by traditional plant medicine (*rongoa Maori*). Well versed in Maori history and sympathetic to indigenous misgivings about bioprospecting, Rasmussen ensures that Phytomed consults with communities to ensure the harvesting of plants is done in an acceptable way. "It would be more beneficial for New Zealand's economy and Maori people if there were a shift toward developing high-quality [plant-based] medicines as a result of bioprospecting programs," he says. "That's our passionate hope."



POTIONS "It's important Maori benefit from commercialization of native plants" and extracts like ginger, below, says Rasmussen

There's a lot of hoping going on in this field—not least by Blunt and Munro with regard to their three compounds. And if none amounts to anything? "I'd be disappointed, but not overly," says Blunt: he and Munro have guided a new generation of New Zealand chemists. Advances in gene therapy, Munro says, mean "the future of chemotherapy—and many of the uses we make of naturally occurring drugs—has a limited life span, perhaps another 20 years." Assuming Wai 262 doesn't halt their research, that's long enough to be sure of this much: Blunt and Munro are going to need a bigger freezer. ■

PHOTOGRAPHS FOR TIME BY SIMON BAKER


kiwiherb
New Zealand Native
HERBAL
DIGESTIVE AID
with Kawakawa & Hoheria
kiwiherb
HERBAL
ALLERGY FORMULA
kiwiherb
New Zealand Organic
HERBAL
THROAT FORMULA
kiwiherb
New Zealand Organic
ECHINACEA
with Manuka honey
root liquid extract
kiwiherb
New Zealand Organic
HERBAL
THROAT FORMULA


kiwiherb
ORGANIC
NEW ZEALAND
WinterGuard
with Olive Leaf &
Echinacea Root
100ml
kiwiherb
NEW ZEALAND
StressCare®
Anti-stress herbs with
Vitamin B-Complex
60 Capsules
Dietary Supplement
kiwiherb
ORGANIC
NEW ZEALAND
Echinature®
Standardised Echinacea
Root Extract
WITH ACTIVE MANUKA HONEY
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Herbal
Chest Syrup
with
Manuka Honey
200m
kiwiherb
NEW ZEALAND
Children's
Echinature®
Echinacea Root Extract
ALCOHOL FREE
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NEW ZEALAND
Meno-Balance™
Black Cohosh & Sage
60 Capsules
kiwiherb
ORGANIC
Herbal
Throat Spray
with Propolis &
Kowakawa

Kiwiherb

The Kiwiherb range provides trusted solutions for common health concerns including:

Children's Health // Immunity // Stress & Sleep

Allergies // Menopause // Skin & Oral Health

KIWIHERB

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ST JOHNS WORT	HYSSOP	ELECAMPANE	BLUE FLAG
Hypericum perforatum	Hyssopus officinalis	Inula helenium	Iris versicolo

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The Ethical Choice

- Global demand for herbal medicine is growing rapidly
- Ensuring medicinal herbs are available in the future is a serious ethical issue

* We believe practitioners and manufacturers share the responsibility of ensuring these plants remain available for future generations

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Ethical Sourcing Policy

Preferential sourcing hierarchy:

1. Cultivated, certified organic herbs
2. Spray-free or growers under organic conversion
3. Wild-crafted herbs collected from their natural environment in a sustainable and ethically sound manner
4. Conventionally grown herbs (trade) from validated ethical suppliers

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Our Commitment:

- ✓ Premium potency
- ✓ Effective quality products
- ✓ Sustainable and ethically sourced ingredients
- ✓ Pure, natural and certified organic where possible

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http://herbblurb.com
philr@phytomed.co.nz

Thank You

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