



# NaturalFacts

*New product announcements, specials and information from New Roots Herbal*

April 2009



**Introducing our team**

# Introducing Our Science Team



## **Dr. ABZAL HOSSAIN**

***Ph.D. Analytical Chemistry***

Dr. Hossain has more than 10 years of experience on chromatographic fields, which includes TLC, HPLC, GC, GC-MS, and LC-MS/MS. He received his first B.Sc. (Honors) degree in Agricultural Chemistry in Bangladesh. Later on, he received his M.Sc. and Ph.D. degrees in Analytical Chemistry from McGill University. His postdoctoral training was about the plant genomic project, which is a collaboration studies with Genome Quebec/Canada. Currently, Dr. Hossain is working at R&D, which mostly focuses on method development and validation on natural health products and dietary supplements.



## **JOCELYNE DERBY**

***B.Sc. Biology / Human Physiology***

A Bachelor of Science graduate from McGill University, with a double major in Biology and Human Physiology, Jocelyne is well-versed in Quality Assurance and Quality Control systems particular to the pharmaceutical industry.

She has advanced GMP and GLP training, and extensive laboratory experience focused on quantitative and qualitative analysis.



## **SHAN BAI**

***M.Sc. Analytical Chemistry***

Shan has joined New Roots Herbal in March 2009.

She got her bachelor degree on biochemistry from Bishop's University (Sherbrooke, Quebec), followed by her Master studies in the area of Structured Lipids in the Department of Food Science and Agricultural Chemistry of McGill University, where she graduated in February 2009.

# Over 240 hours of testing and research each week.



## **ZAHRA ZARE**

***M.Sc. Food Science***

Zahra has a Bachelor degree in Microbiology, and a Master of Science degree from the Food Science Department of McGill University. As a Quality Assurance manager, she works closely with both production and laboratory teams to ensure high quality/safety adhere within our production. She employs her scientific background and her experiences on GMP of natural health products to ensure our products are manufactured as per requirements, raw and finished products are tested for quality and safety aspects and their test results comply with our products specifications.



## **SAMIRA KAZEMI**

***M.Sc. Bioresource Engineering***

A graduate of McGill University's Department of Bioresource Engineering, Samira has her Master of Science degree in the field of Automated Testing Instrumentation. At New Roots Herbal, she applies her experience in the field of Near-Infrared (NIR) technique to facilitate batch testing of incoming raw materials for both their identity and purity, to meet current GMP regulations. She also is responsible for Product Licensing and works in parallel with the Quality Assurance Department to ensure the requirements of natural health products regulations.



## **GORDON RAZA**

***B.Sc. Biology***

New Roots Herbal welcomes Gordon Raza to both their scientific and customer service team.

A graduate of Acadia University (B.Sc. Biology), Gordon has a background in media relations for Major League Baseball (Montreal Expos). He has several years of experience in diagnostic medical sales, along with 15 years of restaurant management.

# Our Cutting-Edge Technology



## Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES)

Inductively coupled plasma optical emission spectrometry (ICP-OES) is an analytical technique used for the detection of trace metals and minerals. This type of emission spectroscopy uses the inductively coupled plasma to produce excited atoms and ions that emit electromagnetic radiation at wavelengths characteristic to a particular element. The intensity of this emission is indicative of the concentration of the element within the sample. ICP-OES instruments are used for the determination of trace level heavy metal contaminants in samples. The instrument can also be used to quantify mineral content in dietary supplements and in plant tissues.



## 3 High-Performance Liquid Chromatography (HPLC)

HPLC is one of the premier analytical techniques widely used in analytical laboratories. HPLC utilizes a column that holds chromatographic packing material (stationary phase), a pump that moves the mobile phase(s) through the column, and a detector that shows the retention times of the molecules.

HPLC has the ability to separate, identify, and quantify the target compounds from any sample that can be dissolved in a liquid. Today, compounds in trace concentrations as low as *parts per billion* (ppb) may easily be identified.



## Gas Chromatography/Mass Spectrometry (GC/MS)

GC/MS systems deliver the highest performance and confidence to overcome complex analyses in today's laboratories. GC/MS is a method that combines the features of gas chromatography and mass spectrometry to identify different substances within a test sample. Applications of GC/MS include drug detection, environmental analysis, and identification of unknown compounds in a complex matrix. Additionally, it can identify trace elements in materials that were previously thought to have disintegrated beyond identification.

# Laboratory Equipment

## NHP Laboratories Tests

Our Analytical Chemistry group stays current and performs a wide range of chemical and instrumental analyses that follow official methodologies, including AOAC, USP, EPA, INS and ICH method guidelines, for the following procedures:

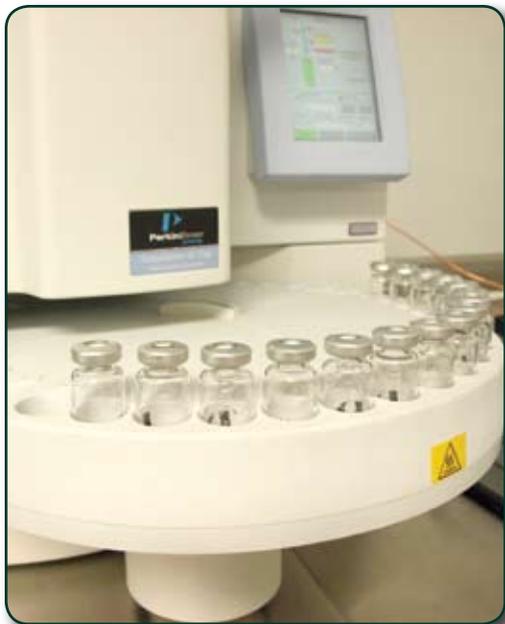
- Titrimetric Analysis
- Microwave Digestion
- Headspace Analysis (organic solvents residues)

### *Spectroscopy*

- Heavy Metal and Mineral Analysis (Inductively Coupled Plasma/Optical Emission Spectrometry, ICP-OES)
- Near-Infrared Spectroscopy (FT-NIR Spectrometer)
- UV/VIS Spectroscopy

### *Chromatography*

- Gas Chromatography with Flame Ionization (GC/FID)
- Gas Chromatography/Mass Spectrometry (GC/MS)
- High Performance Liquid Chromatography – UV/VIS, Refractive Index & Diode Array Detection systems
- High Performance Thin Layer Chromatography (HPTLC) Identification & Impurities



*Headspace Analysis*



*3 Sample Preparation Fume Hoods*



*UV/VIS Spectroscopy*



*Near-Infrared Spectroscopy*



*Near-Infrared Spectroscopy*

# Our Cutting-Edge Technology

## Our Machines

- Four high-speed fully automatic (120,000 capsules per hour) pharmaceutical encapsulation machines
- Two high-speed fully automatic (40,000 capsules per hour) pharmaceutical encapsulation machines
- One semi-automatic (10,000 capsules per hour) pharmaceutical encapsulation machine
- One 40 cubic foot Patterson-Kelly pharmaceutical "V" blender
- One 20 cubic foot Patterson-Kelly pharmaceutical "V" blender
- Four stainless steel sifters
- Three pharmaceutical particle grinding machines

Packaging Equipment



Encapsulation Machine

40 Cubic Foot Patterson-Kelly Mixer



# Production Equipment

Encapsulation Machine



Two fully automatic packaging lines



# Our Cutting-Edge Technology



Silica Gel Packs Insertion



Quality Control



Counter Machine

# Production Equipment

Herbal Extracts



Encapsulating Machine



Particle Grinder



# Our Warehouse

Gravity-Feed Pick & Pack



Gravity-Feed Pick & Pack



Gravity-Feed Pick & Pack



Walk-In Cooler 20'w x 32'L x 16'H



