



# BY's Apitherapy Honey Massage Formula proven to remove Toxic Chemicals from the body.

**NIAGARA ON THE LAKE, ON. August 28<sup>th</sup>, 2023 / -BY's Apitherapy and Wellness Center is the first Canadian clinical based Apitherapy facility dedicated to natural products and treatments derived from the Honeybee such as propolis, pollen, royal jelly, bee venom, bee air inhalation and a myriad of custom formulations for treatments such as those for detox massage. Results of a recent study display significant toxins being removed with the BY's Apitherapy Honey Detox Formula massage. 114 new toxins and 107 existing toxins were documented to be removed from the body post massage.**

Honey is one of the most appreciated and valued natural products introduced to humankind since ancient times. Honey is used not only as a nutritional product but also in health described in traditional medicine and as an alternative treatment for clinical conditions ranging from wound healing to cancer treatment. The aim of this review is to emphasize the ability of honey and its multitude in medicinal aspects. The ingredients of honey have been reported to exert antioxidant, antimicrobial, anti-inflammatory, antiproliferative, anticancer, and antimetastatic effects. Not all honey is the same and unique formulations including honey and active ingredients such as propolis and royal jelly have proven therapeutic advantages.



## **BIOLOGICAL ACTIVITIES OF HONEY**

**BY's Apitherapy Honey Detox Formula has been proven to provide both a detox effect as well as a beneficial antioxidant, antimicrobial and apoptotic activity within the body through dermal absorption.**

Studies indicate that natural bee products can be used for skin treatment and care. Biological properties of these products are related to flavonoids they contain like: chrysin, apigenin, kaempferol, quercetin, galangin, pinocembrin or naringenin. Several pharmacological activities of phenolic acids and flavonoids, and 10-hydroxy-trans-2-decenoic acid, which is present in royal jelly, have been reported. Royal jelly has multitude of pharmacological activities: antibiotic, anti-inflammatory, antiallergenic, tonic and antiaging. Honey, propolis and pollen are used to heal burn wounds, and they possess numerous functional properties such as: antibacterial, anti-inflammatory, antioxidant, disinfectant, antifungal and antiviral.

### **Antioxidant activity**

Oxidant agents such as oxygen involve in preventing damage play as an antioxidant which is detected in foods and human body. The ability of honey for antioxidant properties is related to the colour and source which can dictate which has a higher value of antioxidant. Investigations illustrated that the antioxidant activity is related to the combination of wide range of active compounds present in honey, thus, honey has the ability to act as a dietary antioxidant. According to the scientific literature, honey applied alone or in combination with conventional therapy might be a new antioxidant in the control of commonly associated with oxidative stress.



## **Antimicrobial activity**

The main factors for antimicrobial activity of honey are the enzymatic glucose oxidation reaction and some of its physical aspects, but the other factors that can show antimicrobial activity of honey include high osmotic pressure/low WA, low pH/acidic environment, low protein content, high carbon to nitrogen ratio, low redox potential due to the high level of reducing sugars, a viscosity that limits dissolved oxygen and other chemical agents/phytochemicals. Due to the properties of honey such as low WA and water acidity, glucose oxidase, and hydrogen peroxide, honey does not help in the growth of yeast and bacteria. It has been illustrated that antibacterial activity of honey is effective on many bacterial pathogens.

## **Apoptotic activity**

Cancer cells are characterized by inadequate apoptotic turnover and uncontrolled cellular proliferation. Chemicals which are applied for cancer treatment are apoptosis inducers. Honey makes apoptosis in many types of cancer cells through depolarization of mitochondrial membrane. The apoptotic properties of honey make it a possible natural substance as anti-cancer agent as many chemotherapeutics currently used are apoptosis inducer agents.

## **Anti-inflammatory and immunomodulatory activities**

Chronic inflammation can inhibit healing by damaging tissues. According to the present literature, honey reduces inflammatory response in human models, cell cultures, and clinical trials. Phenolic content in honey is responsible for anti-inflammatory effect. These phenolic and flavonoids compounds cause the suppression of the pro-inflammatory activities of cyclooxygenase-2 (COX-2) and/or inducible nitric oxide synthase (iNOS). Honey and its ingredients have been indicated to be involved in regulation of proteins including of iNOS, ornithine decarboxylase, tyrosine kinase, and COX-2.

## **STUDY RESULTS**

**History:** Medical massage for the purpose of detox has historically shown positive health effects during treatments or rehabilitation but the evidence for what has been removed from the body during massage has been limited at best. The positive findings included a decrease in pain medication and oedema, improved range of motion, muscle and mental relaxation.

**Purpose of our research:** To study the safety and detoxification effect of BY's Apitherapy Honey Detox Formula post massage. Can honey massage remove harmful chemicals or compounds from the body and is there a change in chemicals existing on the body post massage.

In BY's continued drive for Canadian clinical research, their recent study through Loyalist College Applied Research and Innovation Centre for Natural Products have revealed that the BY's Apitherapy Formula for Honey Detox Massage effectively removes toxic chemicals from the body.

## **Scope of Work**

Patients with varying ages and conditions were evaluated to ensure consistency in data collection. All collection was completed to clinical standards and all results were obtained through careful analysis and removal of any chemicals found on each client's skin prior to study commencement. This work involved the chemical profiling (by mass spectrometry chemometrics) of the BY's Apitherapy Honey Detox Formula before and after massage, to document what chemical changes may be occurring during the process. Any changes in the chemical profile were identified, and when possible, significant compounds were assigned identities through accurate mass data. All collection was to standard clinical standards with care taken to determine pre and post conditions of the skin to alleviate any adverse data. This work is the first of its kind in Canada and will help support the validity of a BY's Apitherapy honey detoxification massage.



### The data analysis of the 1178 identified compounds was done in sequential steps:

1. First, an analysis of the post-massage swabs and honey samples was performed. This was done to identify compounds that were left on the skin after the honey massage and that met the two-fold change threshold. This reduced the number of unique compounds identified from 1178 to 1111.
2. Next, pre-massage and post-massage swabs were compared to subtract any compounds that were on the skin prior to honey massage. This further reduced the number of identified compounds that met the fold change of  $\geq 2.0$  from 111 to 221.

**To reiterate, 221 compounds were present in a 2-fold greater proportion in the post- message swab than the pre-massage swab (after subtracting the honey background).**

3. Since the fold change can be looked at from two directions (i.e., compounds that are present in a 2-fold change greater proportion in the pre-massage swab than the post-massage swab), further analysis identified 107 compounds that were found in a 2-fold higher ratio in the pre-massage swabs. **This leaves 114 unique compounds.**

4. Of the 114 unique compounds, 58 compounds were entirely unique to the post-massage swab, and 56 compounds which were entirely unique to the pre-massage swab (after subtraction of the honey background).

### CONCLUSIONS

- After subtracting the compounds present in the honey from the post-massage swab samples, 1111 compounds were present.
- Of these 1111 compounds in the post-massage swabs, 221 were present at a 2-fold change greater than the pre-massage swabs.
- 107 compounds in the pre-massage swabs were present at a 2-fold change greater than the post-massage swabs.
- Between the pre-massage and post-massage swab samples, 114 (58 compounds were unique to post, 56 compounds were unique to pre), and 944 compounds were shared between them.

**Of the 114 new and unique compounds found post the massage, they included a wide assortment of chemicals considered to be toxic in nature to the human body.** The Human Metabolome Database (HMDB) was utilized to determine the foundation and effect to the human body for this part of the analysis. The database is designed to contain or link three kinds of data: 1) chemical data, 2) clinical data, and 3) molecular biology/biochemistry data.

#### Examples are as follows:

**(E)-Urocanic acid** - Has been shown to impair some cellular immune responses and has been proposed as an initiator of the suppression that follows UV irradiation.

**Glycidyl oleate** - Exposure to glycidol may also cause central nervous system depression and is considered a carcinogenic to humans.

**Argininic acid** - Can cause some side effects such as stomach pain, bloating, diarrhea, and low blood pressure.

**Amino acid(Arg-)**- Related to toxicity, mutagenicity and carcinogenicity and can cause a number of detrimental side effects.

**Bikaverin** - Has been found to present toxicity towards other organisms, including some fungi and oomycetes that are plant pathogens.

**1-(Hydroxymethyl)-5,5-dimethyl-2,4-imidazolidinedione** - Used as an antimicrobial pesticide in cleaning products, adhesives, air fresheners, caulks and hydraulic fluids.

**Mefloquine** – Can cause dizziness, difficulty sleeping, anxiety, vivid dreams, and visual disturbances.



**Methyl Nicotinate** - Has been shown to cause toxicity and temporary inflammation and may increase the risk of exposure to other additives. Issues are related to Allergies & Immunotoxicity.

**N-(1-Deoxy-1-fructosyl)phenylalanine** - PKU, phenylalanine can cause intellectual disability, brain damage, seizures, skin disorders and other problems.

**Occidentoside** - OTA can cause nephrotoxicity and renal. Various studies have linked OTA exposure with the human diseases Balkan endemic nephropathy (BEN) and chronic interstitial nephropathy (CIN), as well as other renal diseases.

**Tranlylcypromine glucuronide** - Side effects of tranlylcypromine include dry mouth, headaches, diarrhea, urinary hesitancy, insomnia, agitation, anxiety, nausea, and sexual dysfunction.

**9-Hydroxy-4-methoxypsoralen 9-glucoside** - Has been classified by IARC [115] as possibly carcinogenic to humans.

**The 107 compounds in the pre-massage swabs that were present at a 2-fold change greater than the post-massage swabs included toxic chemicals as noted in the examples below:**

**Pirimicarb** - Pirimicarb is a carbamate that is an active ingredient in some insecticides to control aphids.

**Stearamide** - Has been linked to a risk for Cancer, Allergies, Immunotoxicity and issues with Developmental and Reproductive Toxicity.

**2-hexenedioate** - A toxic chemical listed in EU directives on plastics in contact with food.

**Mycinamicin IV** - Macrolide antibiotics with antibacterial spectra similar to the spectrum of erythromycin.

**beta-Solamarine** - The compound's toxicity can increase at higher doses or prolonged exposure.

**Octacosanetriol** - Might slow blood clotting and increase the chance of bleeding in people with bleeding disorders and might make some symptoms of Parkinson disease worse.

## IN SUMMARY

The resultant exudate removed from the skin surface post massage included both unique and increased levels of toxins post the massage.

**It is justified to say, that the BY's Apitherapy Honey Detox Formula utilized in the massage has proven to be effective in removing unwanted and excess toxins from the body.**

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