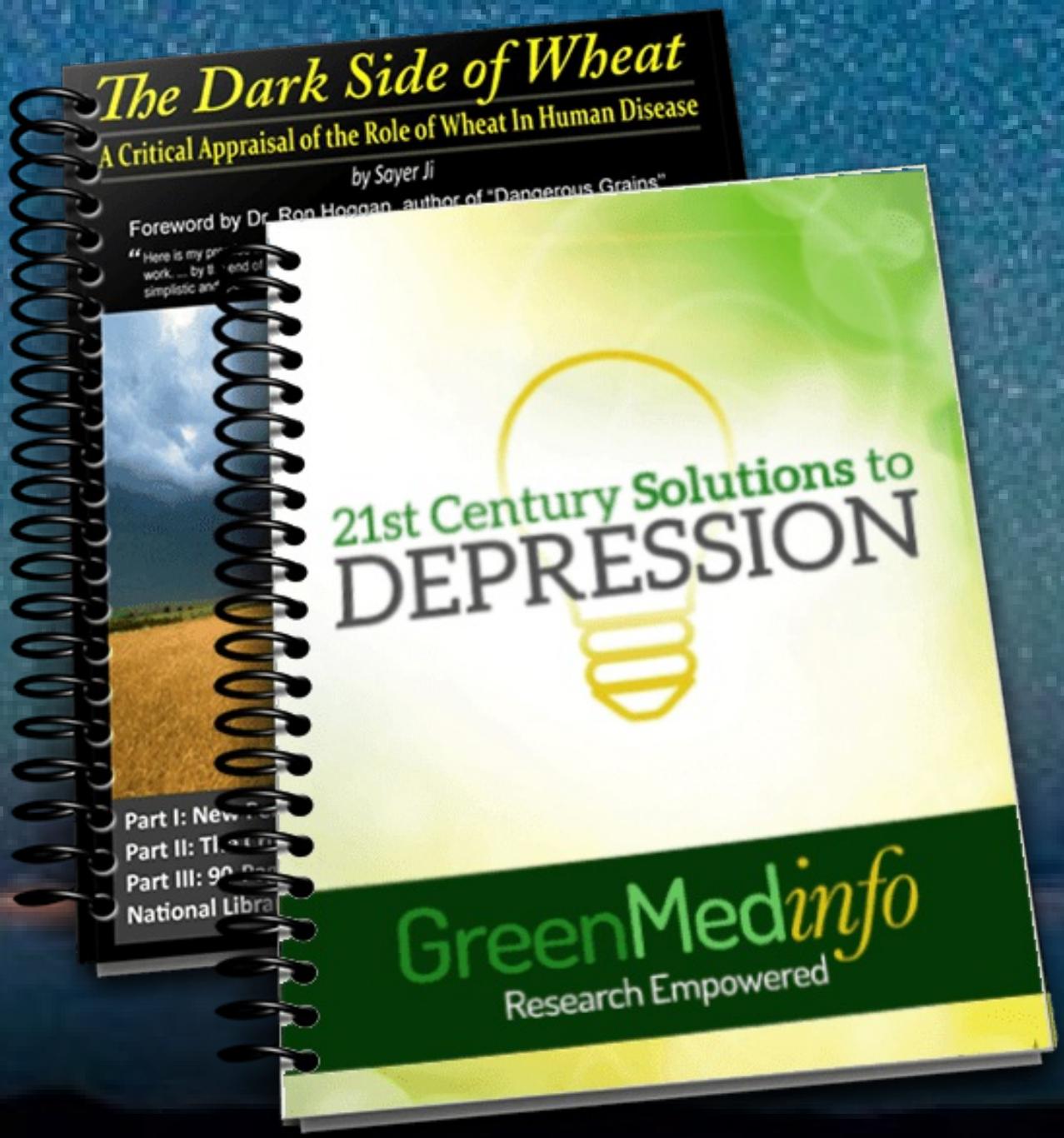


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Raw Honey Contains Probiotic that Boosts Immunity

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Honey has a world of health benefits that science is only beginning to uncover. Now, new research reveals that raw honey in particular has special immune boosting properties as well.

Prior research has shown that honey's ability to stimulate the immune system had a lot to do with the fact that flower nectars contain plant polyphenols and other phytochemicals.

Well, we can now add another reason for honey's ability to stimulate the immune system: A particular probiotic bacteria endemic among honeybees.

The understanding of this probiotic reveals a number of key elements regarding honey and the honeybees – regarding fructose digestion and even honeybee colony collapse.

The probiotic of the beehive

The probiotic bacteria is *Lactobacillus kunkeei*. This bacteria was initially studied in relation to winemaking, because it was often found when a winemaking fermentation process became "stuck." As such, the bacteria has been implicated among spoilage disasters in winemaking and grape juice processors.

But *Lactobacillus kunkeei* has more recently been found among honeybees, and a new sequencing method employed at the Prefectural University of Hiroshima has found that this probiotic bacteria is not only used by honeybees: It is also contained in the honey, bee pollen and royal jelly produced in the hive.

This also means that by eating raw honey, we may be consuming this probiotic bacteria as well. Is it good for us?

Immune-boosting bacteria

To investigate the effects of this probiotic bacteria, the researchers mentioned above first tested two strains of the *Lactobacillus kunkeei* bacteria on cells within the laboratory. When the cells were exposed to heat-killed *Lactobacillus kunkeei* bacteria, the cells initiated an IgA response – meaning they stimulated the cells' immunity processes.

The researchers then gave 1,000 milligrams of heat-killed *Lactobacillus kunkeei* to 11 healthy adults for a month. The researchers found that the *Lactobacillus kunkeei* increased saliva IgA concentrations and secretion among the subjects. This means that it significantly stimulated the immune system.

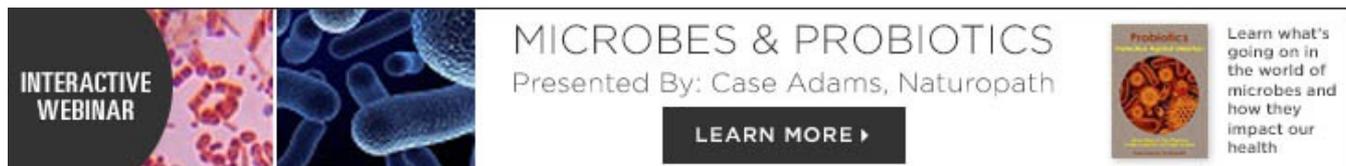
The researchers confirmed the discovery of this information:

“This is the first report of microbiota analysis of royal jelly and the immune efficacy of *L. kunkeei* from honeybee products in humans.”

What are 'heat-killed' bacteria?

Remember that the honey bacteria tested in the study above was heat-killed. This means the bacteria were first heated to the point where they died. In this state, the bacteria are no longer alive. They are not consuming food (called fermentation). They are also not producing acids and antibiotic substances – as living probiotics do.

But when a bacteria is heat-killed, it will go down fighting. It will produce a number of acids and antibiotic substances as it seeks to protect itself from its impending death.



This is why a heat-killed bacteria can still provoke immunity: Those immunity chemicals are in the mix.

But this also means that the living bacteria will do even a better job at stimulating the immune system. Not just a one-shot, but an ongoing immunity stimulation – as long as those bacteria remain alive in the system.

Implications of raw versus refined honey

This heat-killing is what normally happens in most conventional honey production because conventional honey is typically heated and then filtered. This heating process will allow the honey to more easily be run through a filter so the particulates can be screened out.

However, a true raw honey is not heated, nor filtered. You can easily tell a raw honey from a heated-filtered honey because the heated-filtered honey will be clear and the raw honey will have a creamy darker color – and you can't see through it.

This also means a raw honey will contain the living forms of this immune-boosting probiotic bacteria.

The existence of this probiotic can now explain why raw honey has been found to be not only immune-stimulating but also antibiotic. Why? Because probiotics secrete numerous natural compounds to kill off those bacteria that threaten their territories.

Sure, honey also contains phytochemicals from the plant's nectar that stimulate the immune system. We cannot deny that, as other honey research has shown that honey from immunity-stimulating plants (such as Manuka flowers) has more antimicrobial properties than honey from bees that harvest from other plants.

Probiotics from flowers

Honey is stored as energy for bees for wintertime when there are theoretically no more flowers to feed from. Flowers, it seems provide more than just the pollen and nectar - they also provide the bacteria important to the storage and protection of the honey.

A healthy bee produces honey by mixing the flower nectar with saliva and collectively regurgitating it by trading it back and forth between bees. This process infuses the sweetness of the pollen with the probiotic bacteria from the bee's digestive juices – thereby protecting it. This protection doesn't just come from digestive juices however: It also comes from the probiotic bacteria that the bees host. Where do they get this bacteria from?

Several studies by researchers from South Africa's University of Stellenbosch have investigated numerous strains of *L. kunkeei*, collected from flowers, honey and in wine production. The important part of the collections from flowers is these flowers were fresh. In other words, the *L. kunkeei* bacteria have a symbiotic relationship not only with bees and thus humans – but also with these flowers. Thus the flower nectars are providing the bees with bacteria.

As I discuss in my [book on the subject](#), probiotic bacteria provide numerous benefits to their host. These include providing direct antibiotic immune function, assisting and stimulating the immune system, and providing enzymes for digestion along with other chemicals used by the metabolism of the host.

This ongoing investigation on bee bacteria finds that the *L. kunkeei* bacteria initially provide probiotic activity to nectar-containing flowers. This means that bees are not just harvesting the pollen nectar from flowers: They are also harvesting these beneficial bacteria, which provide probiotic services to the beehive.

Another dimension to bee colony collapse

Indeed, after finding no less than 66 strains of *L. kunkeei* and a related species among honeybee hives, the at University of Stellenbosch researchers conducted a study testing a disease pathogen that threatens many hives throughout the world.

The infective pathogen is *Melissococcus plutonius*, and this is the cause of a honeybee disease called European foulbrood. This has also

been implicated as one of the manifestations involved in [bee colony collapse](#).

The researchers found that *L. kunkeei* successfully killed and thus provided antibiotic properties against the *M. plutonius* pathogen.

The mechanism for the antibacterial function of *L. kunkeei* was that it produced an antibacterial peptide.

While *L. kunkeei* is not the only probiotic bacteria that honeybees will utilize in their hives, this study opens up a new in our understanding of bee collapse – the wipeout of those bacteria that bees use to prevent infection.

Is this such a leap? The reality is that pesticides and herbicides also have the unique ability to kill off bacteria along with their intended pests – many of which are microscopic. This unspecific wipeout can be compared to how antibiotic drugs can wipe out our gut's probiotic content.

Passing on honey probiotics to humans

One collected by the honeybee from flowers, the probiotic services provided by the *L. kunkeei* bacteria are then passed onto those humans who smartly and carefully harvest the honey stored in the hive. And of course to those who eat those honeys raw.

This of course confers these probiotic benefits to humans.

Just as other probiotic bacteria do, these bacteria produce lactic acid and acetic acid – both of which assist in the correct pH of our intestinal tracts. These acids also set up an environment which helps prevent the growth of many types of pathogenic bacteria and yeasts.

Raw honey and blood sugar

Probiotics also help us digest and process our foods – and *L. kunkeei* can also perform this function.

The researchers at University of Stellenbosch also found the *L. kunkeei* bacteria feed off complex D-fructose – which both flower nectars and honeys provide.

This fact reveals a much more complex mechanism and benefit of eating raw honey – and at least one reason why honey is one of the healthiest forms of sweeteners in terms of blood sugar control. The fact that these bacteria feed from fructose means they also break down the fructose that can be responsible – in its pure forms – for hiking our blood sugar.

In other research I have showed that fructose from raw fruit comes with complex fibers that help prevent the fructose from surging into the blood. This process is further slowed down by gut probiotics that feed from fructose, thus breaking down these polysaccharide chains into healthy components such as lactic acids and acetic acids.

But honey provides another level above this – assuming raw honey is eaten: It delivers the probiotics that reduce the absorption of fructose of not only the honey, but other fructose-containing foods.

This also provides the missing link that underscores the fact that probiotic supplementation has been shown to improve the fructose/glucose response.

To learn more about the health benefits of honey visit the [Greenmedinfo.com](#) honey research database: [Honey Health Benefits](#).

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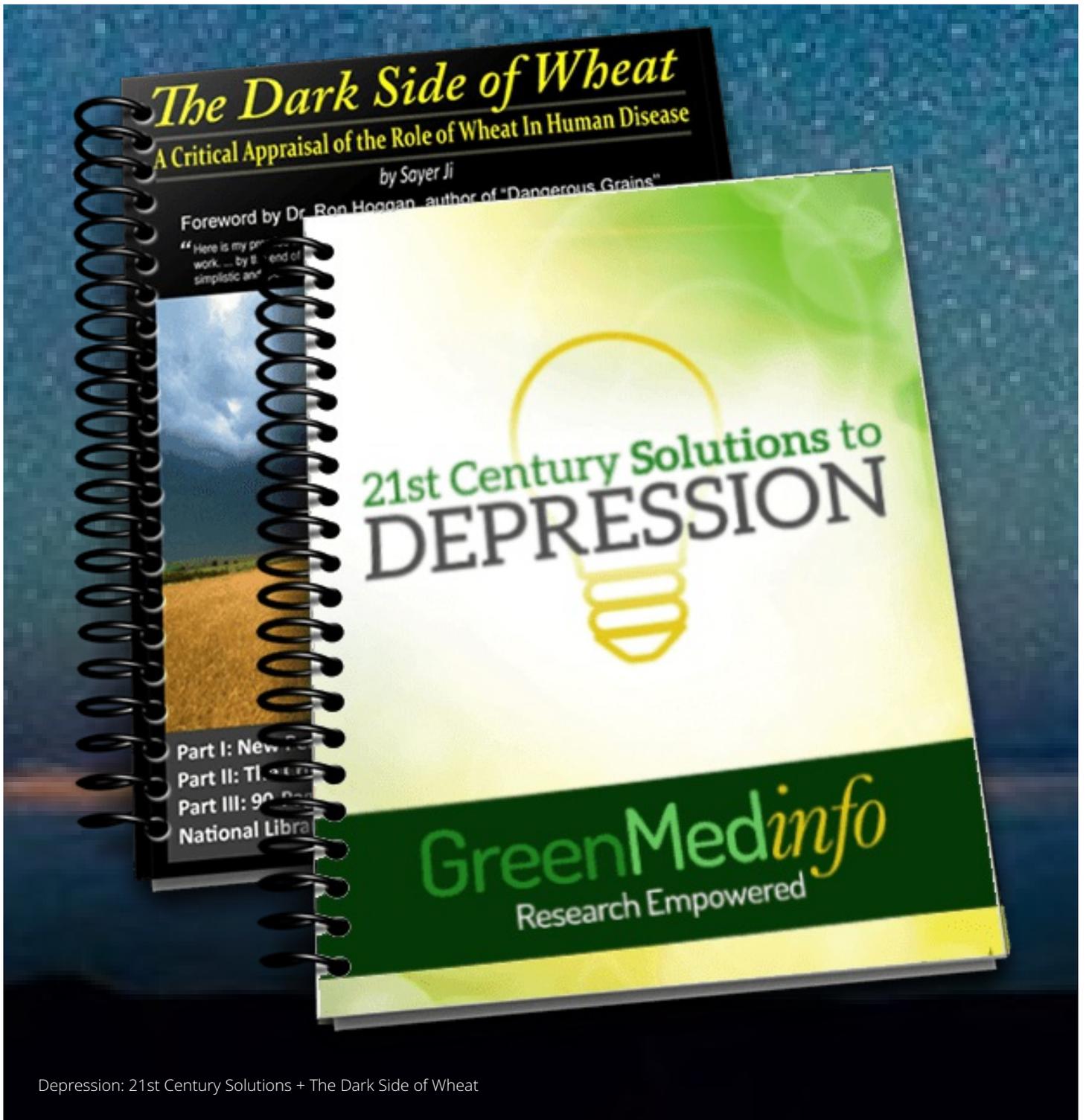
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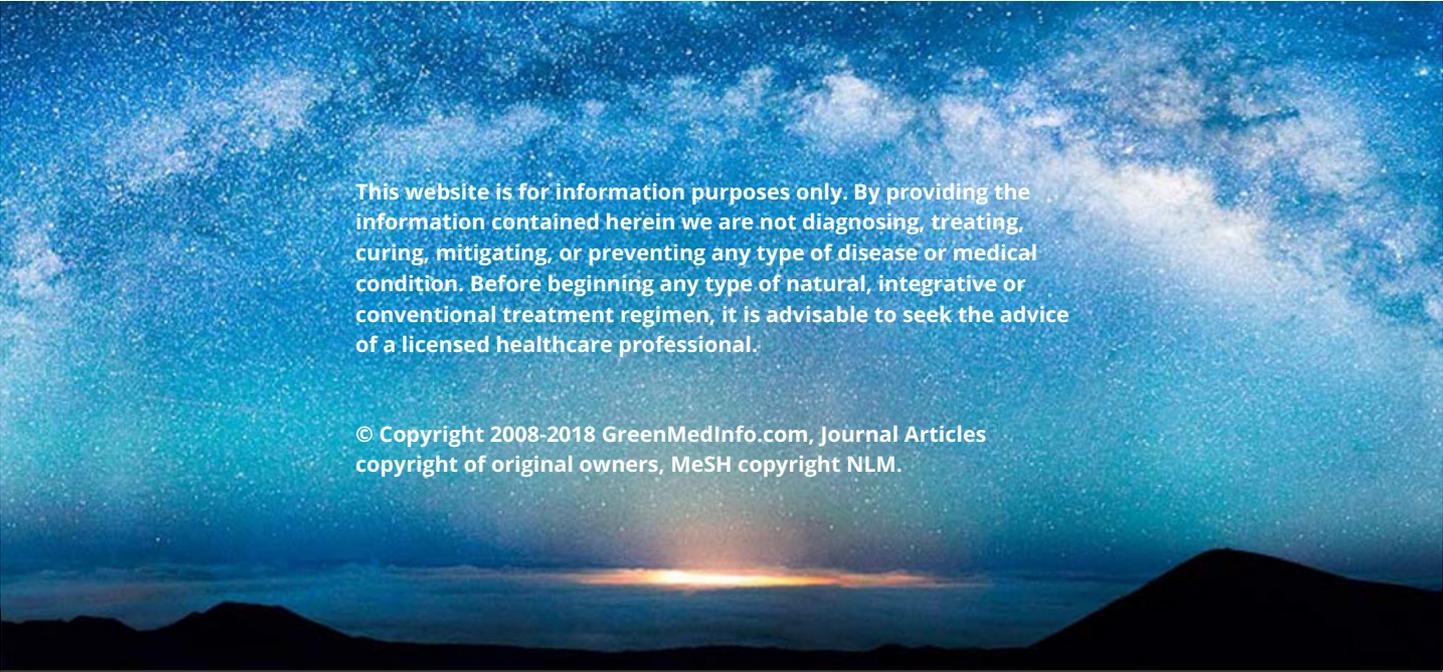
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