INDENA BOTANICAL ALERT!

DNA Technology applied to Bilberry Extract
as the ultimate guarantee of quality and safety

Milan, 16th October, 2019 - It has been estimated that about 30% of biomass materials sold for human consumption are not what is declared on the label.* **The market for botanical products is full of adulterations**, and today being able to **guarantee those products' quality and safety is a key competitive edge**.

One of the most effective methods to verify the authenticity of botanical raw materials is its **genomic identification**. Starting its research on the topic in 2010, **Indena has developed some sophisticated DNA sequencing-based tests** (DNA barcoding) which assure the traceability of the medicinal plant.

Indena has added DNA analysis to the many quality control procedures it performs to guarantee the quality of its products, in terms of botanical and chemical identification, purity and absence of contamination. With plant DNA analysis, Indena has added a fundamental element of certainty about the quality and authenticity of its products.

But, as a matter of fact, what Indena clients buy and use is not the plant but the botanical extract. That's why **applying DNA analysis to the extracts is key to guarantee their quality and safety. After years of research and investment**, **Indena's quality system has developed a reliable method of genomic analysis of the extract**.

The first product on which Indena successfully performed a DNA test is **its bilberry extract, Mirtoselect®.** Bilberry extracts are largely used in pharmaceutical and nutraceutical products due to their known positive effects in particular on eye health and microcirculation. It is important to guarantee that bilberry extracts have the required specifications in terms of chemical components and of the declared pure botanical origin, *Vaccinium myrtillus.*

The method Indena developed is made up of **two crucial phases**: **purification and amplification**. First, the bilberry extract's DNA is purified using an off-the-shelf kit. The second phase is amplification: a fragment of DNA is amplified using a real-time PCR-Probe. The PCR-Probe amplifies a specific region of the DNA, which allows researchers to determine – exactly, and with no uncertainty whatsoever – if the plant used to make the extract is actually *Vaccinium myrtillus*.

The method has **two great strengths**:

1. **robust results**: 20 lots of bilberry extract have been tested independently, in triple-blind experiments, and the analysis was always positive even considering that the results of DNA purification are very variable. The outcome was also confirmed using sequence analysis;
2. **fast analysis**: Indena's patented extract DNA testing method is fast, because amplification with a real-time PCR-Probe takes only about 1 hour.

Furthermore, thanks to the partnership with Hyris Ltd. and its **portable tool (bCUBE®)**, the method is **easy to apply: even customers can perform the analysis themselves**.

Indena then is one of the first companies to develop a robust, fast and easy method to analyze the DNA of botanical extracts. **This allows partners, clients and end consumers to enjoy absolute certainty about the quality of its products.**

"This is an important success for Indena and I'm so proud to have been part of it – **commented Valeria Longo – PhD, Scientist at Indena Biotechnology Lab***. - It was a pleasure for me to develop this method for the Mirtoselect® extract. It was hard work but from a scientific point of view it was extremely exciting. Moreover the collaboration with Hyris Ltd. allowed to apply the method also on the bCUBE® for an easy and fast analysis".*

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***** Soon J.M., Manning L., *Developing anti-counterfeiting measures: the role of smart packaging,* 2019

Scuderi A., Timpanaro G., *The supply chain value of POD and PGI food products through the application of blockchain,* 2019

UIBM, Italian Ministry for Economic Development, *Not to fake – The counterfeiting of cosmetics,* 2013

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Learn how this new technology is able to ensure the authenticity of this ingredient, the original one.
Come and listen to:
Stefano Lo Priore, CEO, Hyris Ltd.
"BOTANICAL ALERT! DNA TECHNOLOGY APPLIED TO BILBERRY EXTRACT: INDENA'S MIRTOSELECT®"
Friday, October 18, 2019 – 1:00 – 1:20 pm
Supplier Presentation Theatre – Booth # 1467

Indena is the leading company dedicated to the identification, development and production of high quality active principles derived from plants, for use in the pharmaceutical, health food and personal care industries. Backed up by almost a century of botanical experience, the company holds more than 120 primary patents, has published more than 700 scientific studies and co-operates with the world's most prestigious universities and private research institutions. Indena employs about 800 staff, investing around 10% of its annual turnover in research, making this activity the key to its success. Headquartered in Milan, Indena has 4 production sites and 5 international branches throughout the world and manages sales in more than 80 countries. The Company's experts communicate and interact constantly with the major international regulatory authorities such as WHO, EMA, FDA and ESCOP, and cooperate on the update of all the main pharmacopoeias. Today, Indena supplies also capacity and expertise for custom manufacturing services and related key technologies. In particular, the company expands its offering with a kilolab to handle semisynthetic and total synthetic APIs that require high containment (OEL of 20 ng/m^3), a new multipurpose GMP pilot plant, a multipurpose fermentation suite and large-and-mid size spray dryers working with organic solvents.

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Indena Press Contacts
bcw | burson cohn & wolfe
Luisa Cavagnera
Luisa.Cavagnera@bcw-global.com Ph. +39.349.7665890

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