

Product innovations from plant based raw materials

Showcase: Lingonberry

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Introduction

Plant based biomasses produced in Northern Finland are potential raw materials for new innovative products. New processing options increase the value of the original raw materials and profitability of the business partners in the production chain. The goal is to utilize raw materials efficiently and generate high-value ingredients and final products for national and international markets in e.g. food and cosmetic sectors.



Research and process development

Extraction, enrichment and isolation techniques are developed and applied for different raw materials like berries, herbs, lichen, and their side streams. The most interesting raw materials and processes are tested in an industrial-scale test arrangement including profitability analysis. Compositional (e.g. phenolics) and activity analyses (e.g. antioxidativity, antimicrobial effects) are conducted throughout the research and development chain.

Novel solutions to utilize raw materials are developed in intense co-operation with company partners from raw material production to processing and marketing. An example of successfully completed research study is lingonberry (*Vaccinium vitis-idaea*) side stream utilization in cosmetics. The research and development cycle of lingonberry ingredients, which were recently commercialized in skin care is presented in Fig. 1.

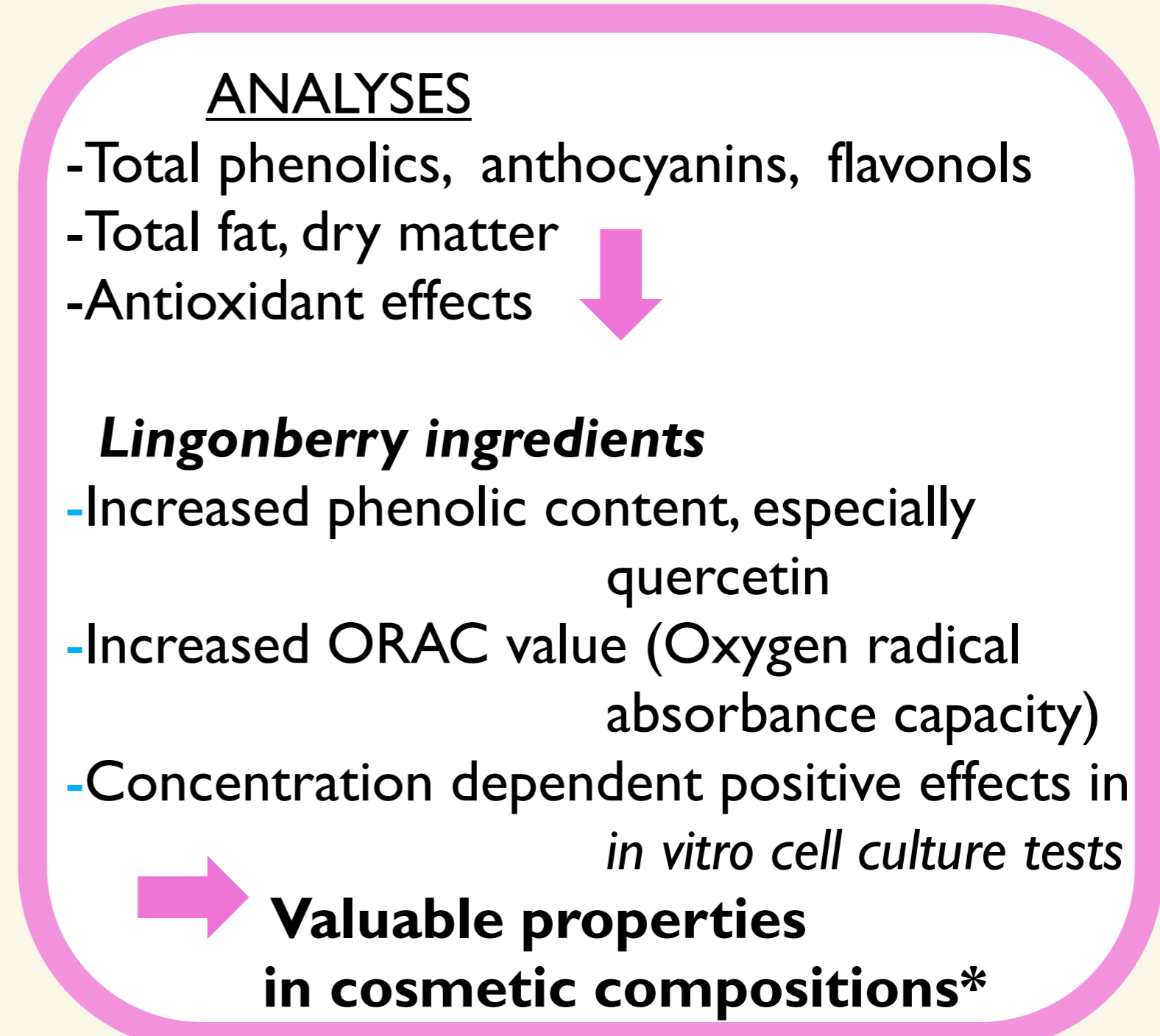
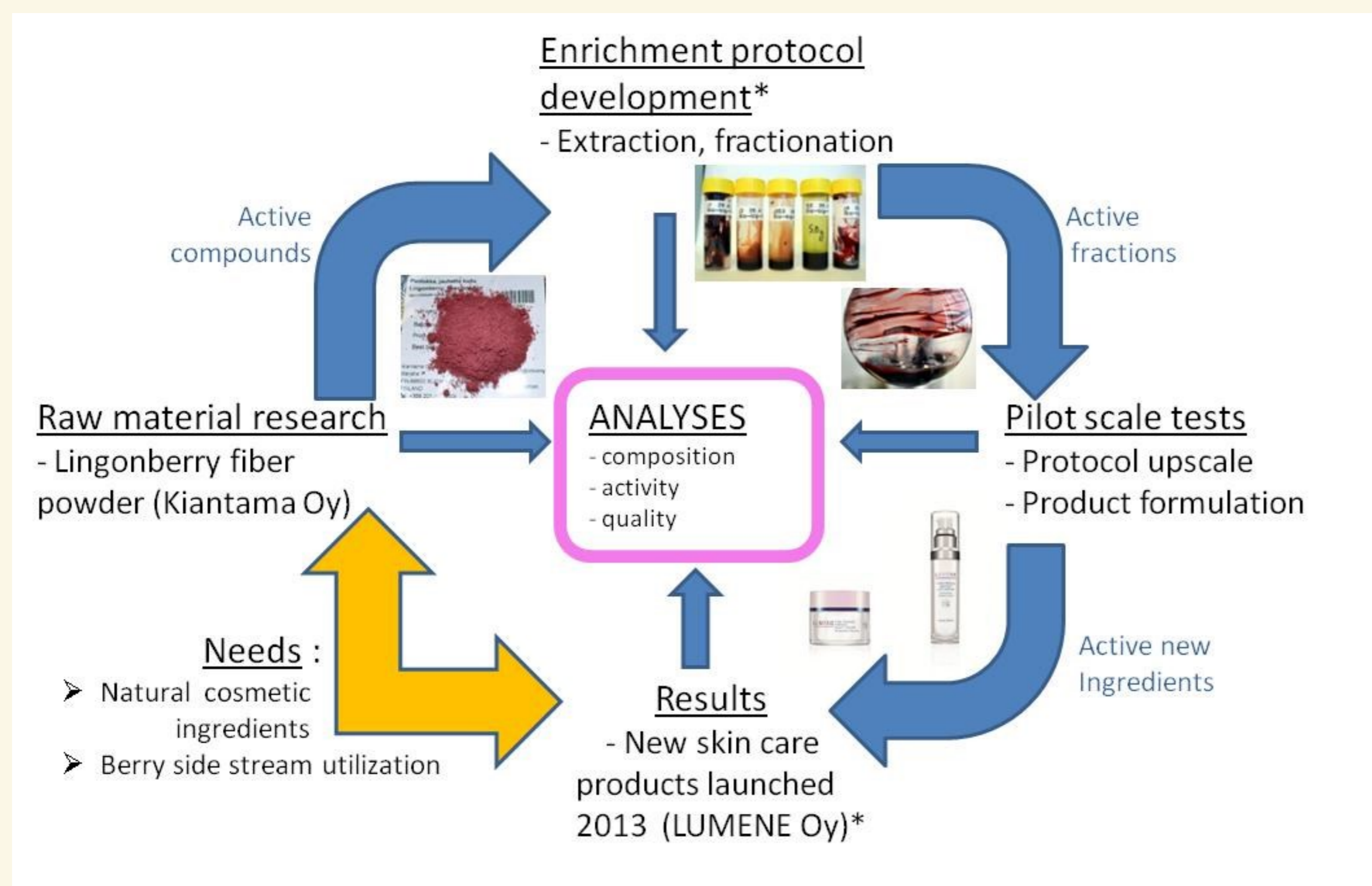


Figure 1. Research and development chain of lingonberry ingredient from raw-material to final products on the market. *Patent pending.

Showcase: Lingonberry ingredients in skin care products

Research was conducted in a collaboration with companies from berry (Kiantama Oy) and cosmetic (LUMENE Oy) industries. Natural active ingredients were desired for cosmetics whereas better utilization was required for berry side streams. This resulted in new enrichment method to exploit active lingonberry side stream phenolics in cosmetic use. Lingonberry fiber powder (Kiantama Oy) which is made of juice press residue was used as a raw material.

Fiber powder contains active phenolics from berry peels. These compounds (especially quercetin) could be enriched in new type of ingredients with high antioxidant effects. Also *In vitro* tests carried out by LUMENE Oy proved that produced lingonberry ingredients have properties which promote skin renewal and help to maintain skin suppleness. A new series of skin care products were launched by LUMENE at the beginning of 2013 on national and international markets.

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