

## Graviola – Development of a novel finish for textile surfaces with active ingredients from the soursop (annona muricata)

### Objective

In natural medicine, the leaves of the tropical graviola tree (*Annona muricata*) are used to improve well-being and treat numerous diseases. The effect of the graviola plant is mainly due to the active ingredients of acetogenins it contains. The extraction, preparation and use of these active ingredients for sustainable textile applications in the field of health and wellness have not yet been the subject of research.

### Approach and results

The aim of the GRAVIOLA project was to develop new types of functionalised textiles using active ingredients from the Graviola plant. The application of the active ingredients was analysed in two different ways: direct finishing of the textiles with different dispersions containing Graviola active ingredients, and application of microcapsules smaller than 100 microns loaded with acetogenins.

The microcapsules were incorporated into suitable binder systems and applied to knitted and non-woven fabrics. The microencapsulation of the Graviola extract ensures that the active ingredient is released over a defined period of time. Essential textile properties such as colour fastness, water resistance, rub fastness and human ecological requirements are maintained.

The anti-inflammatory Graviola ingredients enable a wide range of applications in the wellness and health sector as well as sustainable use in the textile life cycle.

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Ethanolic graviola extract (left), sheet mask functionalised with graviola microcapsules and textile coating systems (centre), microcapsules with integrated graviola active ingredients (right, © Fraunhofer IAP)

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The final report on this project is available on request.

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