



phytoBilayer[®] LB3 For Berberin delivery

A new liposomal form for Phyto-bioavailability

The plant kingdom is one of the most interesting and promising sources of active molecules. Most of the plant-derived classes of active compounds have a lipophilic, molecular structure. The direct consequence of this is a limited bioavailability.

Lipophilic

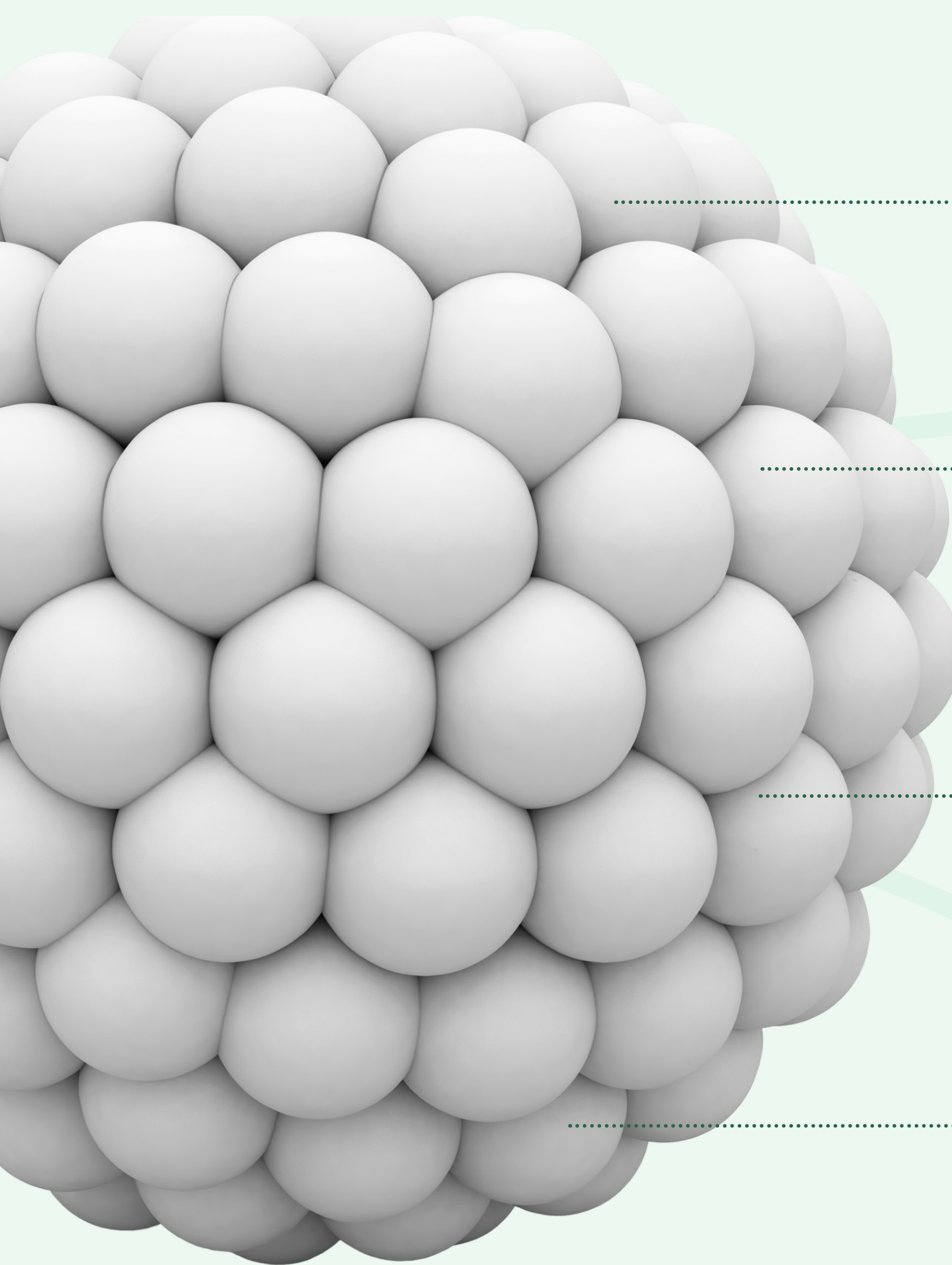


POORLY AVAILABLE

Water insoluble

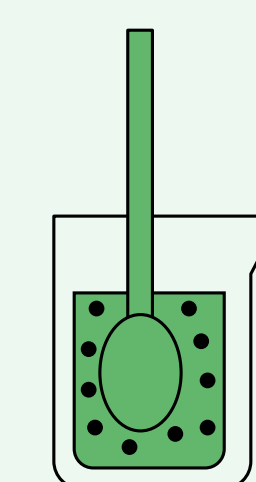


COMPROMISED EFFECTIVENESS



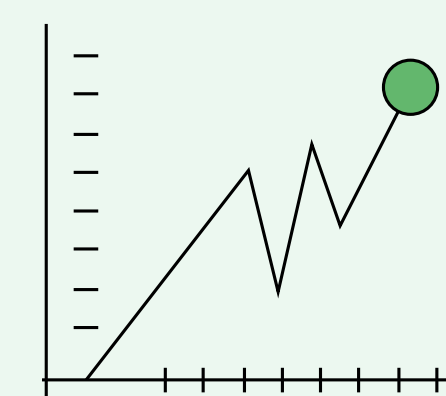
- **Solubility**

Thanks to phospholipids bilayer coating



- **Bioavailability**

Thanks to enhanced affinity for mucosas (hydrophilic external layer)



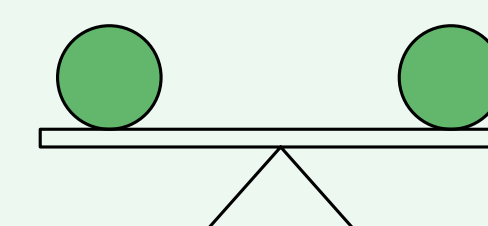
- **Taste masking**

Thanks to the excipient pool ideated for the coating



- **Stability**

Thanks to the excipient pool ideated for the coating



A versatile technology

Phytobilayer Technology is highly customizable in

Active ingredients

- ✓ Herbal extracts
- ✓ Aminoacid and peptides
- ✓ Vitamines and minerals

Coating excipients

Different phospholipidic molecules can be used for the coating

Coating thickness

Coating process can be modulated to gain different particle size

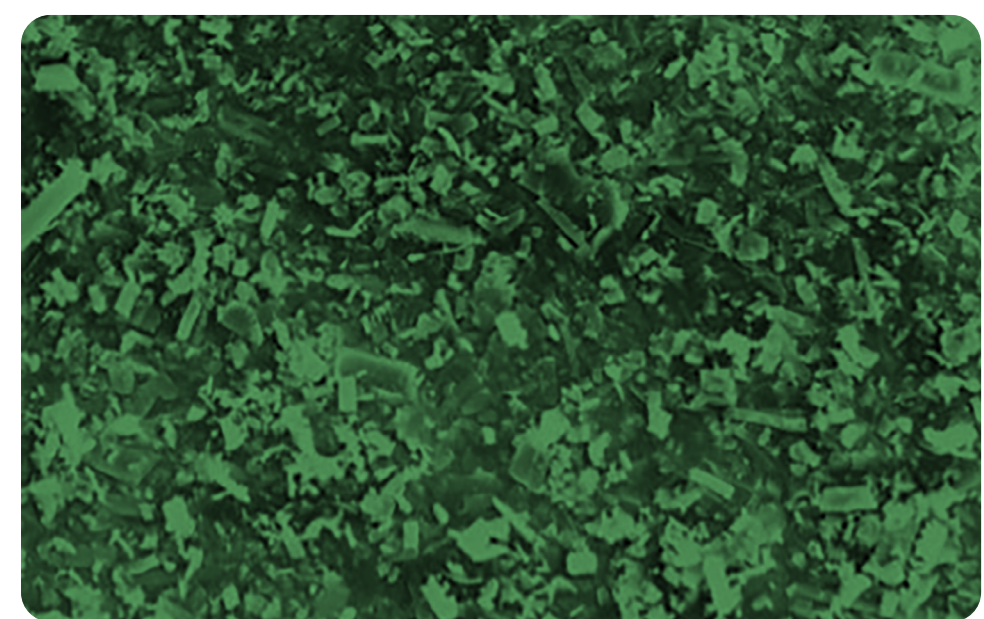


phytoBiLayer[®] LB3[®] For Berberin delivery

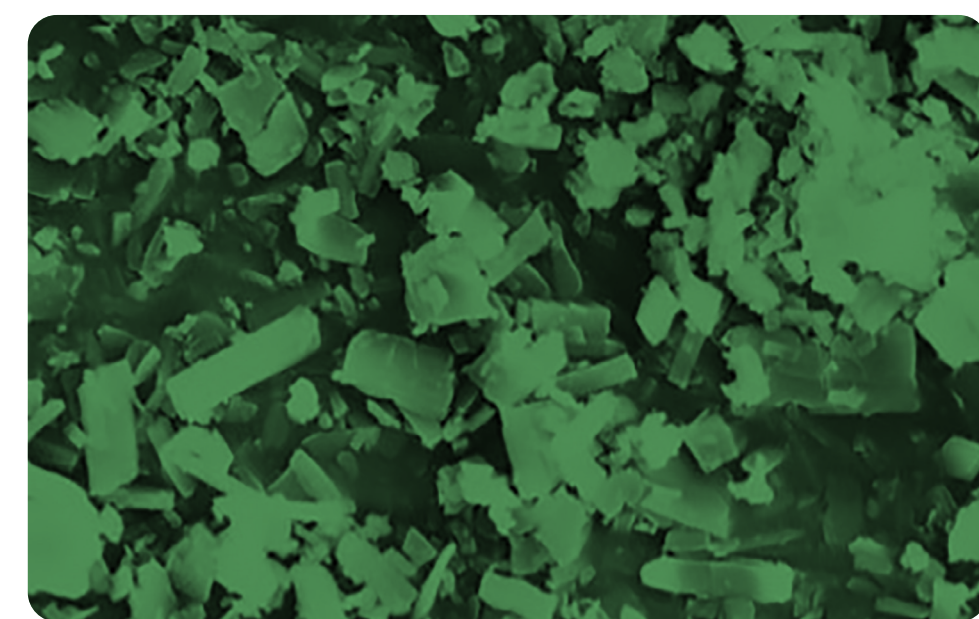
A new liposomal form for Phyto-bioavailability

The technology

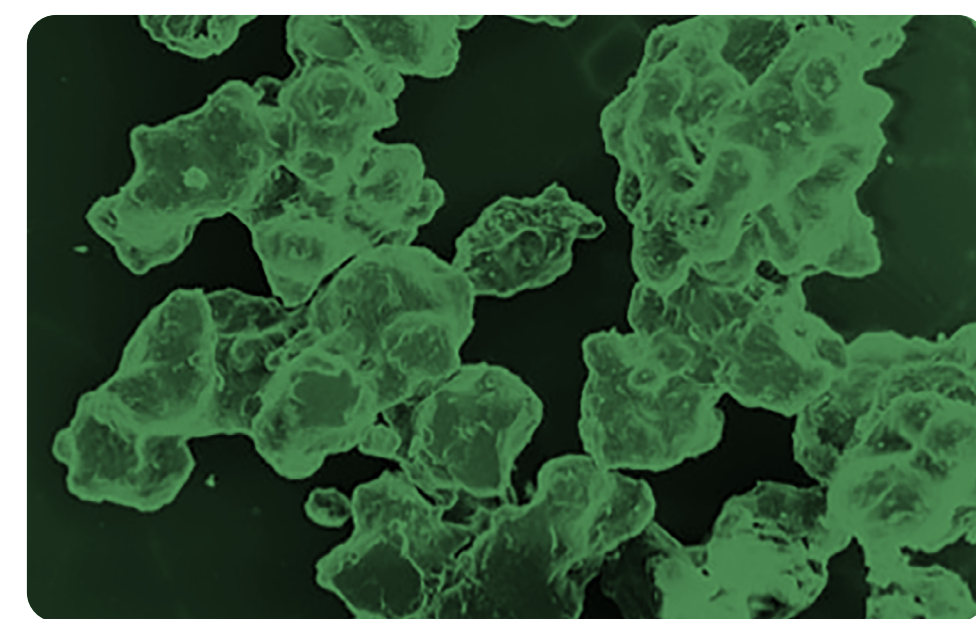
Liposomes are spherical particles showing at least one lipid bilayer, composed of phospholipids so that the inner and the outer surface are hydrophilic, and this enables a better solubility in hydro-medium. Phytobilayer technology of production has been proven to modify the structure of raw material from crystalline to micellar with consequent benefits in terms of bioavailability and solubility.



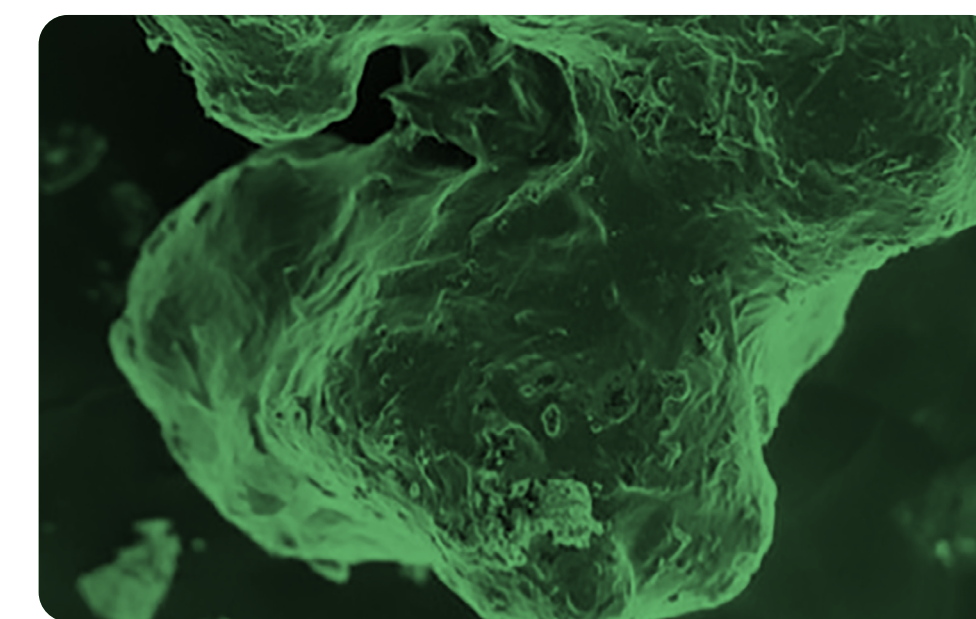
SEM crystalline active image (500x magnification)



SEM crystalline active image (1500x magnification)



Active PHYTOBILAYER LB3[®] SEM images (100x magnification)



Active PHYTOBILAYER LB3[®] SEM images (500x magnification)

Suitable for different active ingredients

Active molecules

- Glutathion

Minerals & Vitamins

- Iron + Vitamin C

Herbal extracts

- Berberin
- Black Pepper
- Rhodiola

Our results: bioavailability of liposomal berberine

Berberine, an active alkaloid from *Berberis aristata*, is well known to be poorly available for enteric absorption. In this study on an animal model, the Berberin quantity in mouse blood samples has been evaluated at 10, 30, 60, 120 and 480 minutes from the oral administration via gavage of 50 mg/Kg of a formulation of Labiotre with 20% of berberine Phytobilayer, and berberine 97% hydrochloride used as a monitor. Both were suspended in water at a concentration of 12.5 mg / mL of equivalent berberine and used for oral administration with berberine equidose.

