

caps<sup>o</sup>il  
food tech by Prodalim

# Game Changing Water Soluble Vitamin D Powder



# Help your consumers have their daily value of vitamin D

**Vitamin D** is a lipophilic – oil loving – vitamin which is produced naturally in our body by converting cholesterol when we are exposed to sunlight.

Vitamins, as a whole, are essential nutrients for our well being and we need to consume them through our diet. Our modern lifestyles prevent our bodies producing the right amounts of **vitamin D** we need by sun exposure alone. Many of us are house and/or office-bound, and because of this, our deficiency in **vitamin D** levels in the population is high (as high as 24% in the USA and close to 40% in Europe).\*

**Vitamin D** is widely recognized for its positive effect on our bones, contributing to enhanced bone strength.

Due to the Covid 19 pandemic the importance of **Vitamin D** has been highlighted for its positive effects on our immune system.\*\* As a result, more and more consumers are now actively adding **vitamin D** to their diet (mainly supplements and foods fortified with **vitamin D**).

Being a lipophilic ingredient, **vitamin D** does not dissolve and is not stable in water-based products. Vitamin D is also light sensitive, so if packed in clear bottles this may also lead to degradation, making the addition of the vitamin to water, for example, highly challenging.

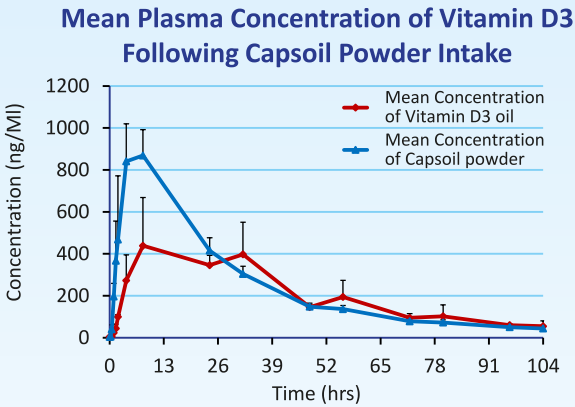
**Capsoil's game changing technology  
can help!**  
**Capsoil Technologies developed an  
innovative production processes of  
ultra-fine powders out of natural oils.**

\* Amerinetal, Nature, 2020

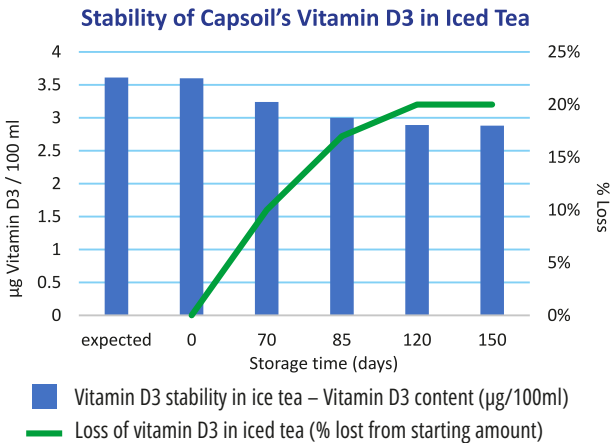
\*\* Lingetal, Nutrients, 2020; Sullietal, Nutrients, 2020

# Capsoil's powders of lipophilic ingredients has some unique benefits:

- High oil load (30-60%)
- Self-emulsifying system soluble in water
- Higher bioavailability of lipophilic ingredient (shown in pre-clinical studies)



- Bioavailability of Capsoil's Vitamin D3 was tested in a pre-clinical study
- Capsoil's vitamin D3 powder was compared to a vitamin D3 oil
- All measures were improved following intake of Capsoil's product including Cmax, Tmax and AUC



- Iced tea mixture was prepared with 3.6 µg/ 100 ml drink
- Little loss of vitamin D3 in the preparation process (including pasteurization)
- After 150 days of shelf life at RT, there was a 20% loss of vitamin D3

**Fortify your product with Capsoil's water-soluble vitamin D!**

\* currently internal data

# Capsoil's unique Game Changing Technology convert any oil based or lipophilic substance into water-soluble powder

- 🌱 Self emulsifying nano-emulsion leading to water solubility
- 🌱 Better bioavailability (bioaccessibility & absorption)
- 🌱 High load of oil in powder
- 🌱 Clean production process – no use of solvents or heat also allows to maintain starting material nutrient content



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