



Enhancing the effect with aXivite

aXivite – pure efficiency for improved health

The health benefits of chilli with its active ingredient capsaicin are well established in science. aXivite’s active ingredient is the innovative Phenylcapsaicin, a patented nature analogue of capsaicin. With its high purity, where the pungency is greatly reduced, a very high bioavailability and no impurities or genotoxicity it is a fantastic innovation for weight control, better gut health, sports nutrition, and as a bioenhancer.

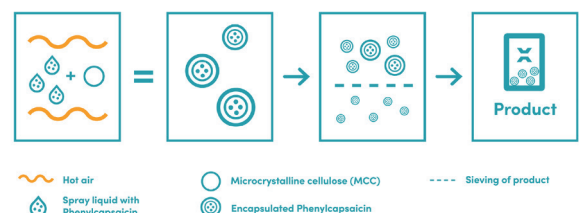
Pure efficiency

Phenylcapsaicin is a capsaicin-engineered molecular structure, that introduces a triple bond within the phenyl group that offers several benefits compared to its naturally occurring analogue. It has a purity of 98%, is easy to handle with 1% formulation in powder form and is stable in production. With its high bioavailability, aXivite delivers much greater plasma concentration at the same dosage compared to natural capsaicin. This allows for a much lower quantity needed, making aXivite a cost efficient, practical, and very safe solution for a variety of new applications, as well as a more effective alternative to naturally extracted capsaicin.

Pungency control

To control the pungency, aXichem has developed a unique microencapsulation, engineered for specific release.

aXivite process description



- 1) The core material microcrystalline cellulose (MCC) particles is fluidized by hot air.
- 2) A spray liquid containing Phenylcapsaicin is sprayed onto the MCC. The hot air dries the particles resulting in encapsulated Phenylcapsaicin on MCC particles.
- 3) Oversized particles are sieved and removed.
- 4) Particles are packaged into ready product.

Safe to use

The unique microencapsulated active ingredient at 1% concentration, also serves as an easy-to-handle food additive which can be further developed into a finished product. According to several tests, Phenylcapsaicin shows no sign of genotoxicity, whereas a high dosage of natural pure capsaicin can be toxic.

This makes aXivite safe for long-term use. Approved by Novel Food in the EU and GRAS Food in the US, we have a guaranteed safe and approved product for the market, which provides improved industrial efficiency combined with strong sustainability.



aXivite tested and proven - enhance the effect

Less is more

Accelerate your nutrition uptake with aXivite, an effective bioenhancer. Scientifically verified, it facilitates a healthy and quick uptake of different ingredients, such as curcumin, melatonin, and caffeine. Compared to natural capsaicin, the bioenhancement effect is superior and microencapsulation enhances absorption and improves nutrient uptake.

Our most recent clinical study shows the effect of aXivite as a bioenhancer for melatonin and caffeine. Melatonin is a hormone that regulates our sleep cycle. The effect however differs and, in many cases, does not last all night or you need a quite high dose to get the wanted effect.



aXivite works as a bioenhancer for several substances accelerating uptake.



The effect of caffeine is increased and long-lasting when used together with aXivite.

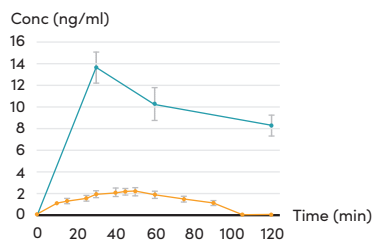
Caffeine is a natural stimulant and works by invigorating the central nervous system, helping you to stay alert and prevent tiredness. However, the use of caffeine can come with some side effects such as disturbed sleep as well as it can differ in efficacy and longevity.

With aXivite the effective dose can be substantially reduced and create a longer-lasting effect on both substances.

CACO trial

A comparative study on the relative uptake of Capsaicin, Phenylcapsaicin and Curcumin in single and combination formulations using a Caco-2 invitro cell assay. The CACO trial shows that the presence of phenylcapsaicin doubled the relative uptake of curcumin. In addition, the study shows that microencapsulation also enhances absorption and improves nutrient uptake.

Pharmacokinetic study of the effect of Capsaicin



Five grams of capsicum providing 26.6 milligram of capsaicin : "Pharmacokinetic and The Effect of Capsaicin in Capsicum frutescens on Decreasing Plasma Glucose Level Kamon Chaiyasit MSc¹, Weerapan Khovidhunkit MD, PhD^{2*}, Supeecha Wittayalerpanya MSc^{3*}"

Clinical Trial Dose of 1,12mg BID of Phenylcapsaicin/aXivite: "Effects of Phenyl-Capsaicin on Weight Loss and Body Composition, Tim N. Ziegenfuss, Ph.D., CSCS⁴"

— Capsaicin 26,6 mg — Phenylcapsaicin, 1,12 mg (cohort 2)

Bioenhancement effect of aXivite[®]

Treatment	Dilution	Curcumin Apical 0h ug/well	Curcumin Apical 2h ug/well	Curcumin Basal 2h ug/well
Cap+Cur 001	1:1	123,3	99,5 ^a	22,4 ^a
Cap+Cur 002	1:1	12	9,2 ^b	2,7 ^a
Cap+Cur 003	1:1	1,2	0,8	0,3
Phecap+Cur 001	1:1	122,4	77,1 ^{a/c}	43,9
Phecap+Cur 002	1:1	12,3	7,4 ^{b/d}	4,8
Phecap+Cur 003	1:1	1,3	0,6 ^c	0,6

The presence of Phenylcapsaicin increased the uptake of Curcumin at all three dose levels even as compared to the Capsaicin + Curcumin formulation (P < 0.05) (CACO in vitro study).

Results:

By using phenylcapsaicin as a bioenhancer the dosage of the active substance can be smaller compared to standard dosages.

- Fewer administrations, longer intervals, and smaller amounts to ingest
- A reduced amount of substance reduces the risk of developing side-effects
- Prolong the half-life of the ingredients
- Less raw material can be used, and margins increased

¹: Proprietary research, aXichem AB, data on file.