HIGHLY BIOAVAILABLE CURCUMIN – SCIENTIFIC EVIDENCE

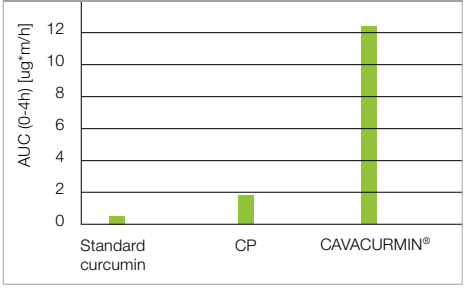
Supplying the body with beneficial amounts of curcumin can be difficult, as it is poorly bioavailable. With CAVACURMIN®, these problems no longer exist.

While the bioavailability of diet-derived polyphenols varies greatly, curcumin is known to show very poor uptake efficiency. Poor absorption in the gut, and rapid metabolism, limit curcumin's ability to reach targets that are distant from the gut and exert its beneficial action. Providing larger amounts of curcuminoids through the intake of additional curcumin in dietary supplements may seem helpful, but adequate biovailability is still an issue.

The Solution: CAVACURMIN®

WACKER was able to enhance the bioavailability of curcumin and is now offering the cyclodextrin-based curcumin formulation CAVACURMIN®. High bioavailability is demonstrated in various scientific studies conducted by WACKER.

Graph 1: Rodent Model – High Bioavailability of CAVACURMIN® as Measured by Total Curcuminoids



Total curcuminoids: sum of free curcumin, curcumin sulfates and curcumin glucuronides; CP = commercial product

In Vivo Bioavailability in a Rodent Model (2009)

Set Up:

Total concentrations of curcuminoids in the blood plasma (0-4 hours) of Sprague Dawley rats were recorded after one oral gavage (500 mg/kg bw) of three curcumin preparations: standard curcumin extract, brand name curcumin (= CP) and CAVACURMIN®. Plasma was analyzed for free curcumin and curcumin metabolites (curcumin sulfates and curcumin glucuronides) by HPLC (0-4 hours).

Result:

Animals that received CAVACURMIN® showed a 10 to 20 times higher amount of total curcuminoids in their blood plasma, expressed as the sum of free curcumin and its metabolites, than animals that received a commercial product or pure curcumin powder.

Conclusion:

This huge difference in HPLC-measured curcumin metabolites indicates that a maximum amount of curcumin was delivered into the blood stream of the rats, which can only be explained by the very highly bioavailable CAVACURMIN® (see graph 1).

In Vitro Bioavailability in a Human Caco-2 Model (2011)

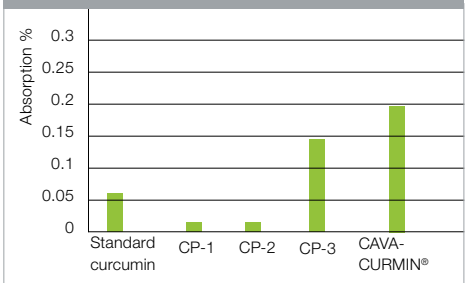
Set Up:

The dissolution profile of five curcumin preparations (standard curcumin extract, three leading brand name curcumin products = "CP" and CAVACURMIN®) in simulated intestinal fluid (SIF, 0.5% SDS) followed by the uptake of Caco-2 cells (human gut cell model) was investigated.

Result:

CAVACURMIN® was up to five times more efficiently dissolved compared to leading commercial curcumin supplement products or curcumin powder itself. The following uptake study with human Caco-2 cells also demonstrates a superior performance by CAVACURMIN®. The uptake was up to 10 times higher than for other leading commercial curcumin formulations or curcumin powder itself (see graph 2).

Graph 2: Caco-2 Model – Absorption of CAVACURMIN® in Comparison to Leading Commercial Products



CP = commercial product

Conclusion:

These results clearly underline the significant increase in bioavailability of curcumin in a cyclodextrin-based formulation.

Formerly marketed as CAVAMAX® W8 Curcumin.

WACKER

CREATING TOMORROW'S SOLUTIONS

Human Bioavailability in a Clinical Study (2013)

Set Up:

The relative absorption of CAVACURMIN® was compared to standard 95% curcumin extract and two leading commercial products claiming to have enhanced bioavailability in a clinical setting. 12 individuals (fasted overnight) were given three different bioavailable curcumin preparations and standard curcumin orally – with a one-week washout period in between the four formulations. After product intake, blood was drawn hourly for 12 hours and analyzed (spiked plasma samples). Blood concentration and the relative absorption of curcumin and its derivatives were determined.

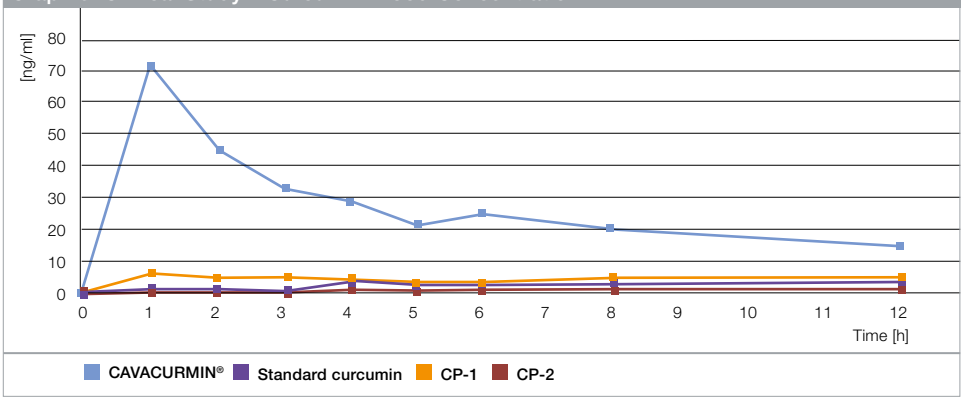
Result:

CAVACURMIN® was about 40 times more efficiently absorbed compared to leading commercial curcumin supplement products or curcumin powder itself. The highly superior performance of CAVACURMIN® was demonstrated by the fact that the curcumin uptake was at least 4.6 times higher than the next-best commercial curcumin formulation in this clinical study (see graphs 3 and 4).

Conclusion:

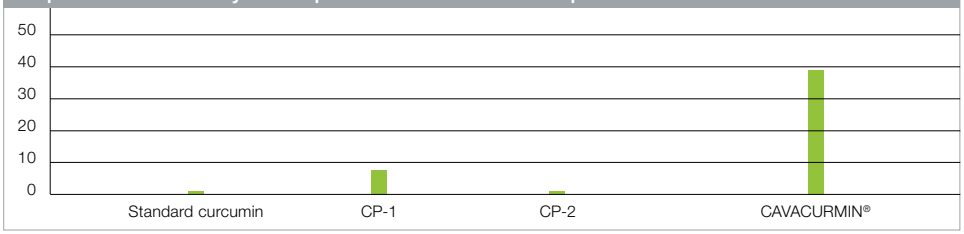
These results clearly underline the significant increase in bioavailability of curcumin in a cyclodextrin-based formulation. Furthermore, these data suggest that CAVACURMIN® can provide the benefits of the powerful antioxidant curcumin to a much greater extent than existing commercial products.

Graph 3: Clinical Study – Curcumin Blood Concentration



Blood concentration [ng/ml] of curcumin (CP = commercial product).

Graph 4: Clinical Study – Comparison of Relative Absorption



The relative absorption of total curcuminoids was compared after oral intake of standard curcumin versus two commercial bioavailable formulations (CP-1 and CP-2) and CAVACURMIN®. The results showed a significantly higher relative absorption of CAVACURMIN®.

For a Variety of Applications

CAVACURMIN® comes as a dry, free-flowing powder. It is thus especially well suited for use in dry or powdery dietary supplement products, such as tablets, capsules and nutritional bars. Since it disperses easily in aqueous systems, it is also available for use in beverages.

CAVACURMIN® is produced using a naturally occurring oligosaccharide (not chemically produced) as a hydrophilic carrier: CAVAMAX® W8 gamma-cyclodextrin.

Our experts look forward to partnering with you to help you create the healthy and bioavailable products of tomorrow.

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CAVACURMIN®

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