

Supporting Information

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Determination of dihydrocapsaicin adulteration in dietary supplements using LC-MS/MS

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Table S1 : Declared contents of studied dietary supplements

Product number	Contents
A	30% Cherry stalk, L-carnitine, guarana, rosemary, mate, green tea, thyme, vegetable-based gelatin
B	Grape seed, lotus leaf, vitamin C, zinc, green tea, microcrystalline cellulose
C	Olives, figs, dates, harlequin
D	Garsinya extract, chitosan (from shrimp and crab), green tea extract, raspberry ketone
E	Chromium GTF, cress seed, garcinia extract, ginger, coenzyme Q10, L-Carnitine, green tea
F	Green coffee and chia beans, natural cocoa beans, goji currant, acai strawberries
G	B vitamins, Vitamin C, calcium and iron (22 minerals and vitamins)
H	Fucoxanthin and water soluble dietary fiber
I	<i>Spirulina</i> sp. thallus
J	Green Tea leaf extract, dicalcium phosphate, gelatin, maltodextrin

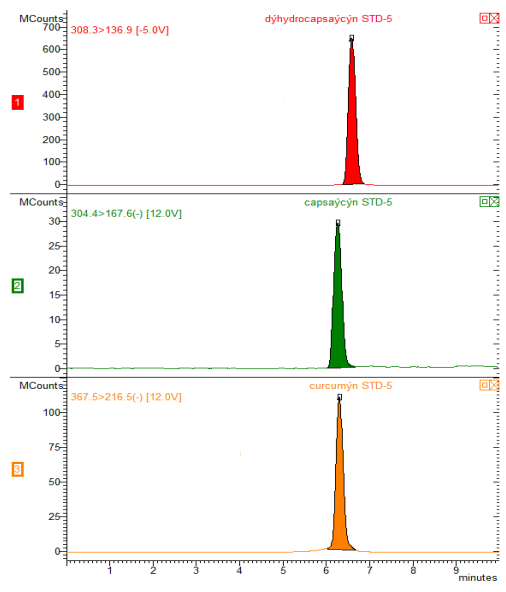


Figure S1. LC-MS/MS chromatograms of standards and curcumin (IS) (3 $\mu\text{g/mL}$).

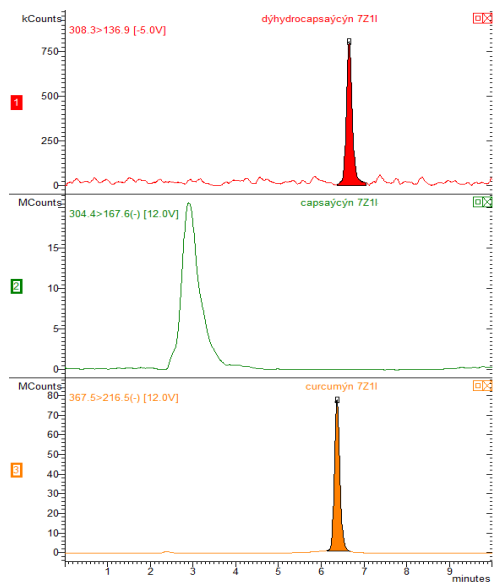


Figure S2. LC-MS/MS Chromatogram herbal extract

S1. Experimental

S.1.1. Extraction Methods

Capsaicin and dihydrocapsaicin were analyzed in 10 different products. Three different extraction methods, Soxhlet extraction, Ultrasonic extraction and Water bath reflux extraction techniques were used for the products A, B and C.

S.1.1.1. Soxhlet Extraction

For capsules : Contents of 30 capsules of A, B, E, I and J branded capsules were weighed and powdered thoroughly in the mortar and portioned out equally into three groups for the soxhlet extraction. Samples were prepared by placing 10 capsules in each cellulosic prepared cartridges and extracted with 250 mL of ethanol for 2.5 hours to make 1 siphon approximately per 50 minutes.

For Tablets : Thirty tablets of C, D and H brands were weighed and divided equally into three groups. Each group was powdered thoroughly in the mortar. It was filled into cartridges prepared from cellulose paper and extracted with 250 mL ethanol as described above.

For Powdered Products : As the F and G brands were powdered, 60 grams of each of them were weighed and portioned out equally into three groups. Then, they were extracted with 250 mL of ethanol for 2.5 hours. The resulting solvents were individually blown with a rotary evaporator and the remaining extract was weighed with tared glass flasks.

S.1.1.2. Ultrasonic Bath Extraction

Contents of 30 capsules (A, B) and tablets (C) of products were weighed and powdered thoroughly in the mortar and portioned out equally into three groups of each product for the soxhlet extraction. Then, the samples were transferred to the flasks and 250 mL of ethanol was added and extracted in ultrasonic bath for 2.5 hours. The extracts were filtered into glass flasks using filter paper. After the solvent was evaporated with a rotary evaporator, the remaining extract was weighed with tared glass flask.

S.1.1.3. Water Bath Reflux Extraction

30 capsules/tablets were selected of the products of A, B, C for water bath reflux extraction. All samples were divided equally into three groups. Each group was powdered thoroughly in the mortar and samples were transferred to flask and 250 mL of ethanol was added and extracted with condenser in water bath for 2.5 hours. The extracts were filtered into glass flasks using filter paper. After the solvent was evaporated with a rotary evaporator, the remaining extract was weighed with tared glass flask.