

# Chlorogenic Acid Isomers from Coffee Are Differentially Uptaken by HepG2 Human Hepatoma Cells

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## SUMMARY

The uptake of chlorogenic acids from coffee extracts by HepG2 human hepatoma cells was investigated. HepG2 cells were incubated with a commercial instant decaffeinated coffee solution (1.5% and 4% w/v) for 1.5-7.5 hours. Results from incubation with coffee at 1.5% showed that although the concentration of 5-caffeoylquinic acid (5-CQA) in cell culture media was about 1.5 times higher than that of both 3-CQA and 4-CQA, the uptake of the latter two isomers by HepG2 cells was 5 and 6 times higher, respectively, than the uptake of 5-CQA. Similar results were observed for 3- and 4-feruloylquinic acids (FQA) compared to 5-FQA. FQA uptake was also facilitated compared to CQA uptake. Increasing CGA concentration in cell media caused a relative decrease in the uptake of feruloylquinic acids in comparison with caffeoylquinic acids and the uptakes of 3- and 4-substituted isomers, especially FQA isomers, while the uptake of 5-CQA and 5-FQA was proportional to their concentration increase in the cell culture media. Our results suggest differentiated transport systems for CGA isomers, where the uptake of some isomers is facilitated – at least in part – by a carrier system(s). Further investigation is under way.