

Modified Coffee Roasting as a Means of Acidity Increase

A. DEGENHARDT¹, C. MENDL¹, S. CERALI², F. ULLRICH¹

¹Kraft Foods R&D Inc., Bayerwaldstr. 8; 81737 Munich, Germany

E-mail: adegenhardt@krafteurope.com

²Kraft Foods Global Coffee Technology, Ruscote Avenue, Banbury, OX16 2QU, UK

SUMMARY

Organic acids which impact sourness perception of roast and ground coffee have been studied thoroughly in the past. Malic, citric, phosphoric and acetic acids have been identified as the major contributors to coffee sourness. Malic and citric acids, e.g., are already present in the green bean, while other acids are being formed during roasting (Clark and MacRae, 1985). The formation of acids during roasting of coffee beans follows well-established chemical reaction pathways and precursors of acids have been identified. Sucrose is considered as a major precursor for organic acids such as acetic acid and formic acid. Formation kinetics have been studied in detail with isotopically labeled precursor compounds (Ginz et al., 200). In the present study, our trials have shown that an additional amount of acidity is created by applying roasting parameters with modified time-temperature curves and subsequent extraction techniques. The flavor development was monitored by comprehensive aroma analysis and supported by sensory studies of the roasted and ground coffees. Acid extracts obtained by the presented roasting method have been characterized by pH, TA and organic acid measurements. The sensory impact of the extracts was studied after add-back to both soluble and roast and ground coffees and a significant enhancement of sourness perception was demonstrated for soluble coffee.