

Evaluation of Antioxidant Activities and Antimutagenicity of Turmeric Oil: A Byproduct from Curcumin Production

Guddadarangavvanahally K. Jayaprakasha, Bhabani S. Jena, Pradeep S. Negi and
Kunnumpurath K. Sakariah*

Human Resource Development, Central Food Technological Research Institute,
Mysore 570013, India. Fax: 0821-51 63 08. E-mail: gkjp@yahoo.com

* Author for correspondence and reprints requests

Z. Naturforsch. **57c**, 828–835 (2002); received April 30/June 7, 2002

Turmeric Oil, Antioxidant Activity, Antimutagenicity

Curcumin removed turmeric oleoresin (CRTO) was extracted with hexane and concentrated to get turmeric oil, and that was fractionated using silica gel column chromatography to obtain three fractions. These fractions were analyzed by GC and GC-MS. Turmeric oil contained aromatic turmerone (31.32%), turmerone (15.08%) and curlone (9.7%), whereas fractions III has aromatic turmerone (44.5%), curlone (19.22%) and turmerone (10.88%) as major compounds. Also, oxygenated compounds (5,6,8–10) were enriched in fraction III. Turmeric oil and its fractions were tested for antioxidant activity using the β -carotene-linoleate model system and the phosphomolybdenum method. The fraction III showed maximum antioxidant capacity. These fractions were also used to determine their protective effect against the mutagenicity of sodium azide by means of the Ames test. All the fractions and turmeric oil exhibited a markedly antimutagenicity but fraction III was the most effective. The antioxidant effects of turmeric oil and its fractions may provide an explanation for their antimutagenic action.