

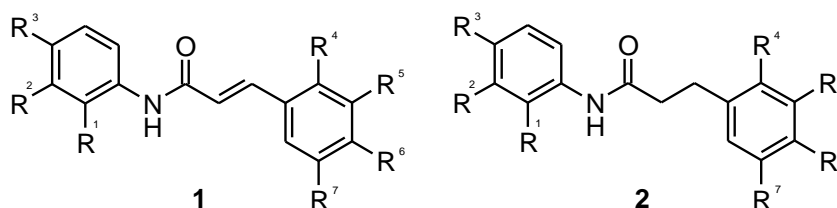
The Impact of Cinnamoyl and Hydrocinnamoyl Anilines on the Oxidative Stability of Rapeseed Oil Methyl Esters

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Avenanthramides **1** ($R^1=COOH$) - natural alkaloids, commonly found in oats - and cinnamoyl anilines **1** are interesting due to their biological activity, especially antioxidant and antiradical properties. In order to evaluate structure-activity relationships we have synthesized a number of analogues of known avenanthramides and their partially saturated derivatives – hydrocinnamoyl anilines **2**. The compounds differed with substituents in the aniline (R^1-R^3 were H, COOH or OMe) and cinnamic acid (R^4-R^7 were H, OH, OMe or NMe_2) moieties.



All compounds were tested for their antiradical activity against DPPH. The anilides **1** and **2** containing vanillin and syringaldehyde moieties demonstrated higher antiradical activity; derivatives of syringaldehyde showed remarkably higher antioxidant potential. The substituents in aniline moiety or the presence of double bond did not significantly affected antiradical activity; for compounds **1** or **2** it was vastly greater than that of BHT. The impact of the compounds **1** or **2** on the oxidation processes of FAME was evaluated. The anilides with the best antiradical activity against DPPH were added to industrially produced rapeseed oil methyl esters (RME). The amount of antioxidant additives - compounds **1** or **2**, as well as BHT - was 0.09 mmol/100 g RME. Unfortunately according to peroxide values anilides **1** and **2** exhibit only slight effect on the oxidative stability of RME and it is less than for BHT, at least in the initial stages of oxidation.

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