XXXV

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Straightforward Preparation of Biologically Active Dimers of Ferulic Acid

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Ferulic acid (4-hydroxy-3-methoxycinnamic acid, Fig. 1) is an ubiquitous phenolic compound in plant tissues, and it constitutes a naturally occurring antioxidant compound found in many foods. The biological effects of this molecule and its esters are of particular interest as efficient inhibitors of trichothecene mycotoxin production by the plant pathogenic fungal species *Fusarium graminearum* and *Fusarium culmorum* which are the most common incitants of Fusarium Head Blight disease in wheat, barley and cereal grain crops. To date, a few synthetic and natural products have been reported as inhibitors of trichothecene biosynthesis. Among them, dehydrodimers of ferulic acid, referred to as dehydrodiferulates DiFAs (Fig. 2), are likely to be involved in plant protection against pathogen invasion (1,2,3).

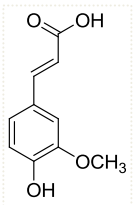

Figure 1

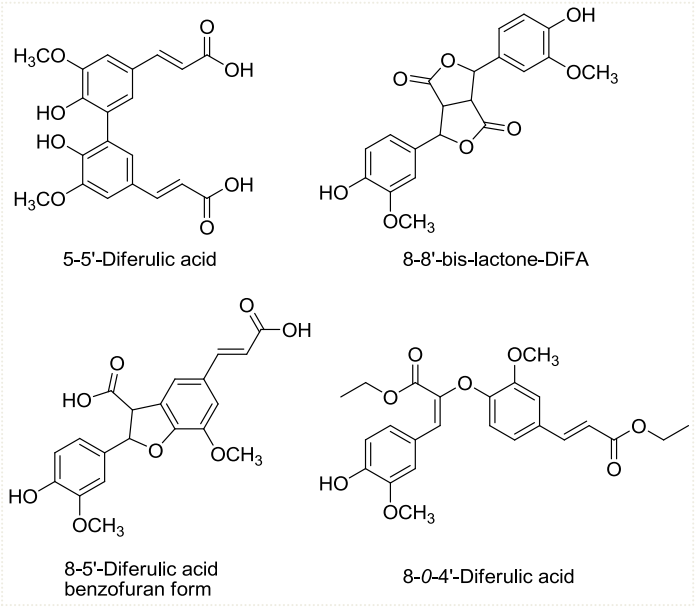

Figure 2

Here we present different convenient ways to obtain five naturally occurring DiFAs via peroxidase-mediated oxidative coupling reactions or classic cross-coupling oxidations through a sustainable, safe and inexpensive chemistry. Such compounds arise from 5-5', 8-8', 8-5' and 8-*O*-4' coupling and some of them have been tested as potential inhibitors of micotoxin production *in vitro.*

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