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Structure-Antioxidant Activity Relationships of Lignans from *Schisandra chinensis*

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Phytochemical investigation of the fruits of *Schisandra chinensis* led to the isolation of 13 lignans. One of them was identified as a new homolignan with a dibenzocyclooctadiene skeleton having an exocyclic double bond, schisandrene and its structure and absolute-configuration have been established using extensive 1D and 2D NMR techniques including COSY, HMQC, HMBC, NOESY and MS and CD data. Antioxidant activity of lignans were evaluated using the 2',7'-dichlorodihydrofluorescein diacetate (DCFH-DA) cellular-based assay. Schisandrene was identified as the predominant antioxidant constituent in the fruits of *S. chinensis*. The structure-activity relationships of the tested lignans were demonstrated that the exocyclic methylene group on cyclooctadiene ring of the lignan structure were essential to antioxidant activity and the benzoyloxy group in the cyclooctadiene ring could enhance their antioxidant effect. The isolated compounds did not exhibit any anti-inflammatory, anticancer or cytotoxic activity when tested in a variety of *in vitro* cell based assays.