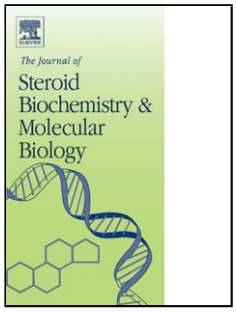

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Daidzein-rich isoflavone aglycones inhibit cell growth and inflammation in endometriosis

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Highlights

- We proposed the efficacy of DRIAs and dietary supplement on endometriosis.
- DRIAs inhibit cell proliferation in human endometriotic stromal cells.
- DRIAs reduce inflammatory cytokines and exhibit ERβ-mediated activity.
- DRIAs reduce the extent of endometriosis-like lesions in a mouse model.
- DRIAs might be a potential therapeutic option for management of endometriosis.

Abstract

Endometriosis is an estrogen-dependent disease, and isoflavones interact with estrogen receptors. The purposes of this study are to investigate the *in vitro* and *in vivo* effects of daidzein-rich isoflavone aglycones (DRIAs), dietary supplements, on cellular proliferation in endometriosis. Stromal cells isolated from ovarian endometrioma (OESCs) and normal endometrium (NESCs) were cultured with DRIAs, ~~i.e.~~*i.e.*, each of the DRIA components (daidzein, genistein, or glycitein), or isoflavone glycosides (IG; DRIA precursors). A mouse model of endometriosis was established by transplanting donor-mouse uterine fragments into recipient mice. Our results showed that DRIAs ~~(0.2–20~~ (0.2–20 μM) inhibited the proliferation of OESCs (P<0.05 for 0.2 μM; P<0.01 for 2 and 20 μM) but not of NESCs. However, daidzein, genistein, glycitein, and IG did not inhibit their proliferation. DRIA-induced suppression was reversed by inhibition of the estrogen receptor (ER)β by an antagonist, PHTPP, or by ERβ siRNA (P<0.05), but not by MPP, an ERα antagonist. In OESCs, DRIAs led to reduced expression

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