The effects of Curcuma longa and curcumin on reproductive systems. 

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OBJECTIVE: Curcuma longa (C. longa) was used in some countries such as China and India for various medicinal purposes. Curcumin, the active component of C. longa, is commonly used as a coloring agent in foods, drugs, and cosmetics. C. longa and curcumin have been known to act as antioxidant, anti-inflammatory, anti-mutagen, and anti-carcinogenic agents. The attempt of the present review was to give an effort on a detailed literature survey concentrated on the protective effects of C. longa and curcumin on the reproductive organs activity.

METHODS: The databases such as, PubMed, Web of Science, Google Scholar, Scopus, and Iran-Medex, were considered. The search terms were "testis" or "ovary" and "Curcuma longa", "curcumin", "antioxidant effect", "anti-inflammatory effect" and "anti-cancer effect".

RESULTS: C. longa and curcumin inhibited the production of the tumor necrosis factor-α (TNF-α) and prostaglandin E2 (PGE2) and increased the caspases (3, 8 and 9) activities in HL-60 prostate cancer. Furthermore, C. longa and curcumin suppressed the vascular endothelial growth factor (VEGF), phosphorylated signal transducers and activators of the transcription 3 (STAT) and matrix metalloproteinase-9 (MMP-9) in ovarian cancer cell line.

CONCLUSION: C. longa and curcumin might decrease the risk of cancer and other malignant diseases in the reproductive system. C. longa and curcumin have a protective effect on the reproductive organs activity such as, anti-inflammatory, anti-apoptotic, and antioxidant effects in normal cells but showed pro-apoptotic effects in the malignant cells. Therefore, different effects of C. longa and curcumin are dependent on the doses and the type of cells used in various models studied.

KEYWORDS: Curcuma longa; curcumin; reproductive system; therapeutic effects

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