Anticancer activity of *Bombyx batryticatus* ethanol extract against the human tumor cell line HeLa

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Received November 26, 2013
Accepted March 11, 2014
Published January 15, 2015
DOI http://dx.doi.org/10.4238/2015.January.15.10

**ABSTRACT.** Anticancer activity of *Bombyx batryticatus* ethanol extract (BBE) against HeLa cells was studied using cell viability, DNA fragmentation, real-time polymerase chain reaction, and Western blot analyses. The BBE inhibited the growth and induced apoptosis of HeLa cells. The MTT assay indicated that the BBE induced cytotoxicity in HeLa cells in a time- and concentration-dependent manner. When HeLa cells were treated for 48 h, the 50% inhibitory concentration (IC$_{50}$) value for the BBE was 1.564 mg/mL. The microscopy results showed that HeLa cells were severely distorted and showed slow growth; some cells became round in shape when treated with 5 mg/mL BBE for 24 h. The DNA ladder results revealed excessive DNA fragmentation in HeLa cells treated with 7 mg/mL BBE for 36 h. The proapoptotic activity of the BBE was attributed to its ability to modulate the expression of *Bcl-2* and *Bax* genes. The mRNA and protein expression levels of *Bax* were remarkably higher whereas those of *Bcl-2* were lower than those in the control cells; this led to an increased *Bax/Bcl-2* ratio in cells treated with the BBE for 36 h. The results suggest that the BBE might play an important role in tumor growth suppression by inducing apoptosis in
human cervical cancer cells via the regulation of the Bcl-2- and Bax-mediated apoptotic pathways.

**Key words:** *Bombyx batryticatus*; Apoptosis; Cytotoxicity; HeLa cells; Apoptotic pathway