

Abstract

## Apoptotic Effect of Ginnalin A on MDA-MB-231 and MCF7 Human Breast Cancer Cell Lines <sup>†</sup>

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**Abstract:** Breast cancer is the most common type of cancer in women. The aim of this study was to investigate the effects of Ginnalin A (GA), an important phenolic compounds of maple syrup, on apoptosis in MDA-MB-231 and MCF-7 human breast cancer cells. The effect of GA on cell viability was determined by using XTT method. Expressions of genes are important in apoptosis including *CASP3*, *CASP7*, *CASP8*, *CASP9*, *BCL2*, *BAX*, *CYCS*, *FAS* and *P53* were evaluated by qPCR. IC<sub>50</sub> dose of GA was found as 160  $\mu$ M in MDA-MB-231 and 300  $\mu$ M in MCF7 cells, for 72 h. According to the qPCR results, a significant increase in the expression of *CASP3*, *CASP8*, *CASP9*, *CYCS*, *FAS* and *P53* genes was observed as 3.88, 12.11, 4.76, 8.17, 4.27 and 3.31 folds, respectively in MDA-MB-231. In MCF-7 cells, the expression of *CASP9* and *P53* genes significantly increased to 8.24 and 3.39 folds, respectively, while the expression of *BCL2* gene significantly decreased to 1.85 fold, compared with the control group. In conclusion, it is thought that GA demonstrates apoptotic effect by regulating expression of important genes in apoptosis on breast cancer cells. However, further functional analyses are required to clarify its effect on breast cancer.

**Keywords:** apoptosis; breast cancer; Ginnalin A

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**Conflicts of Interest:** The authors declare no conflict of interest.



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