

## New Quinazoline Derivative Induce Cytotoxic Effect against MCF-7 Human Breast Cancer Cell

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**Abstract :** New quinazoline schiff base 3-(5-bromo-2-hydroxy-3-methoxybenzylideneamino)-2-(5-bromo-2-hydroxy-3-methoxyphenyl)-2,3-dihydroquinazolin-4(1H)-one was investigated for anticancer activity against MCF-7 human breast cancer cell line with involved mechanism of apoptosis. The compound demonstrated a remarkable antiproliferative effect, with an IC<sub>50</sub> value of  $3.41 \pm 0.34$ , after 72 hours of treatment. Morphological apoptotic features in treated MCF-7 cells were observed by AO/PI staining. Furthermore, treated MCF-7 cells subjected to apoptosis death, as exhibited by perturbation of mitochondrial membrane potential and cytochrome c release as well as increase in ROS generation. We also found activation of caspases 3/7 and -9. Moreover, acute toxicity test demonstrated the nontoxic nature of the compound in mice. Our results showed the selected compound significantly induce apoptosis in MCF-7 cells via intrinsic pathway, which might be considered as a potent candidate for further in vivo and clinical breast cancer studies.

**Keywords :** antiproliferative effect, MCF-7 human breast cancer cell line, apoptosis, caspases

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