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## PhD Dissertation Defense

Entitled

*The Effects of Frondoside A in Acute Leukemia*

by

**Ms. Fatma Hussain Sajwani**

Faculty Advisor

**Prof. Thomas E. Adrian, Department of Physiology  
College of Medicine and Health Sciences**

Date & Venue

**12:15 PM**

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**Sheikh Zayed seminar room, CMHS Building**

Abstract

Acute leukemia remains a major cause of mortality and new drugs are needed. Frondoside A is a triterpenoid glycoside from the sea cucumber, *Cucumaria frondosa* that has antitumor effects in solid cancers. We investigated the effects of frondoside A in acute leukemia in comparison with the conventional drugs. Acute leukemia cell lines were treated with frondoside A, vincristine, asparaginase and prednisolone alone and in combination with frondoside A. Cell viability was assessed. Induction of apoptosis was examined and expression of apoptosis-related genes and proteins was investigated. Frondoside A enhanced the anticancer effects of the conventional drugs with induction of apoptosis. Frondoside A treatment increased expression of genes of the intrinsic, extrinsic and the executioner apoptosis pathways. Frondoside A treatment increased expression of the cyclin-dependent kinase inhibitor, p21. Frondoside A also markedly increased expression of genes in the NFκB pathway, indicating activation of this survival pathway. Frondoside A has marked anti-leukemia effects and potentiates the effects of other drugs currently used to treat acute leukemia. Frondoside A may be a valuable addition to the therapeutic options patients by sparing the side-effects of high-dose therapy. Interaction with the NFκB pathway opens a new possible avenue for therapeutic intervention.

**Keywords:** Frondoside A, acute leukemia, pro-apoptosis, anti-cancer, chemotherapy, sea cucumber, NFκB pathway.