



**Shiraz University
Faculty of Sciences**

Ph.D. Thesis in Organic Chemistry

**Synthesis of Poly-Hydroxyl Aromatic Compounds
(Phloroglucide Analogs) and Some of Their
Derivatives as Potent Biological Active Compounds**

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September 2012

In the name of GOD

Declaration

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**SYNTHESIS OF POLY-HYDROXYL AROMATIC COMPOUNDS
(PHLOROGLUCIDE ANALOGUES) AND SOME OF THEIR
DERIVATIVES AS POTENT BIOLOGICAL ACTIVE COMPOUNDS**


BY:
RAHELE BARGE BID


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Dedicated To:

My Dear Parents

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ABSTRACT

Synthesis of Poly-Hydroxyl Aromatic Compounds (Phloroglucide Analogs) and Some of Their Derivatives as Potent Biological Active Compounds

By:

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Poly-hydroxyl aromatic compounds (phloroglucide analogs) and their derivatives are among the most important classes of compounds in organic chemistry, pharmacology and electronic industries. Development of novel synthetic methodologies for the synthesis of these compounds represents a major challenge in synthetic organic and medicinal chemistry.

One part of this study includes the synthesis of the titled compounds from the condensation reaction of 2,6-bis(hydroxymethyl)phenols with a range of substituted phenols using solid acid catalysts under mild and heterogeneous reaction conditions. Novel application of organic catalysis by ionic liquids for the preparation of phloroglucides was also examined. Various phloroglucide analogs were synthesized from 2,6-bis(chloromethyl)phenols and substituted phenols in neutral ionic liquids under microwave irradiation. In addition, the catalyzed synthesis of phloroglucide derivatives using ZnO nanoparticles was reported from the condensation reaction of 2,6-bis(chloromethyl)phenols and substituted phenols or indoles in mild conditions. The next part of this work was based on the preparation of new derivatives of phloroglucides including their acylated analogs and Mannich bases.

In another part of this research, we have reported the preparation of silica gel supported boric tri-sulfuric anhydride (SiO_2 -BTSA) as a heterogeneous solid acid catalyst. To evaluate the catalytic performance of this catalyst, we examined its activity in some acid catalyzed reactions such as synthesis of phloroglucides, dihydropyrimidinones, 1-amidoalkyl-2-naphthols and quinoxalines.

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