

Hybrid dinuclear vanadium complexes with natural substrates as potential therapeutic agents in human pathophysiology



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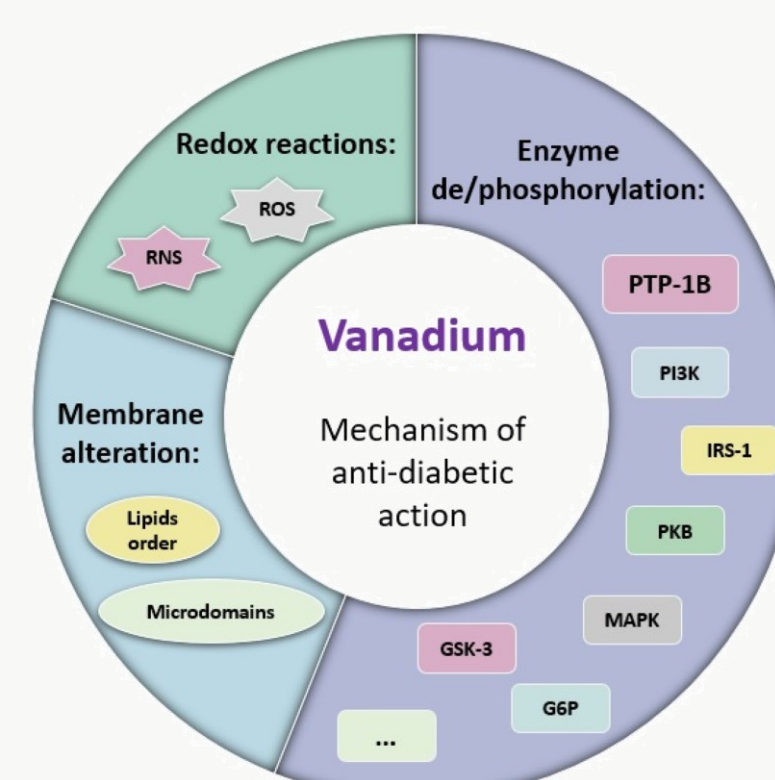
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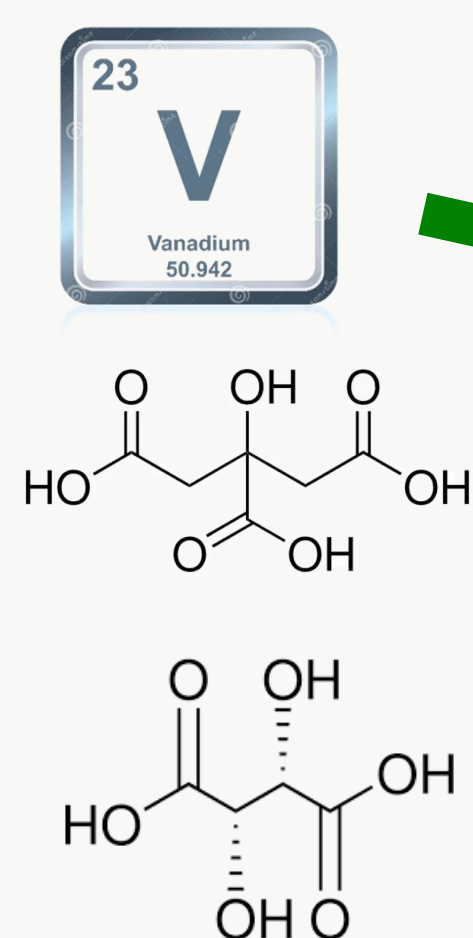
Introduction

In recent years, vanadium in the oxidation states V(IV) and V(V) has attracted increasing interest in therapeutic medicine, due to the diverse nature of metal-organic complexes, which have demonstrated therapeutic activity against various pathologies. In this study, an extensive investigation was conducted over a broad spectrum of binary and ternary vanadium compounds with physiological substrates, which exhibit biological profiles reflecting anticancer properties and insulin-mimetic activity.¹

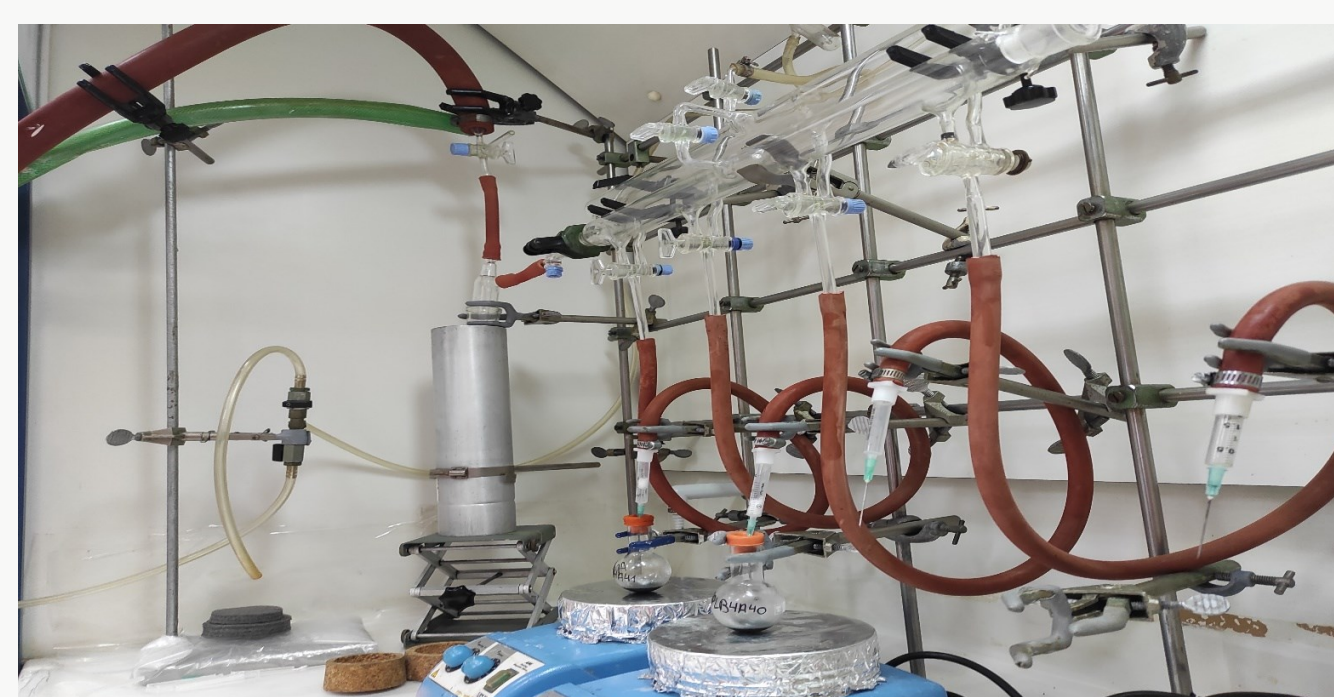
More specifically, V(IV) complexes with natural substrates, such as α -hydroxycarboxylic acids have been shown to enhance insulin activity in reducing elevated plasma glucose levels, activate enzymes involved in xenobiotic metabolism, and inhibit cancer cell-signaling pathways.² In the present work, novel types of hybrid binary vanadium complexes with physiological ligands were developed, including, for the first time, dinuclear complexes featuring different oxidation states of vanadium.



Materials and methods

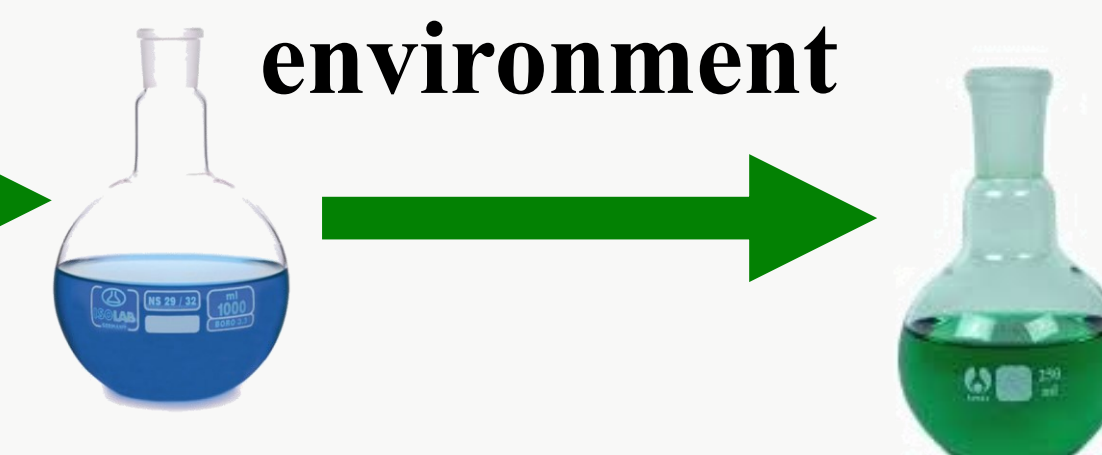


**Anaerobic
reaction**



**Vacuum line system for synthesis
of hybrid materials**

**Alkaline
environment**



Results

X-Ray crystallography

