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A Literature Review on the Imidazole

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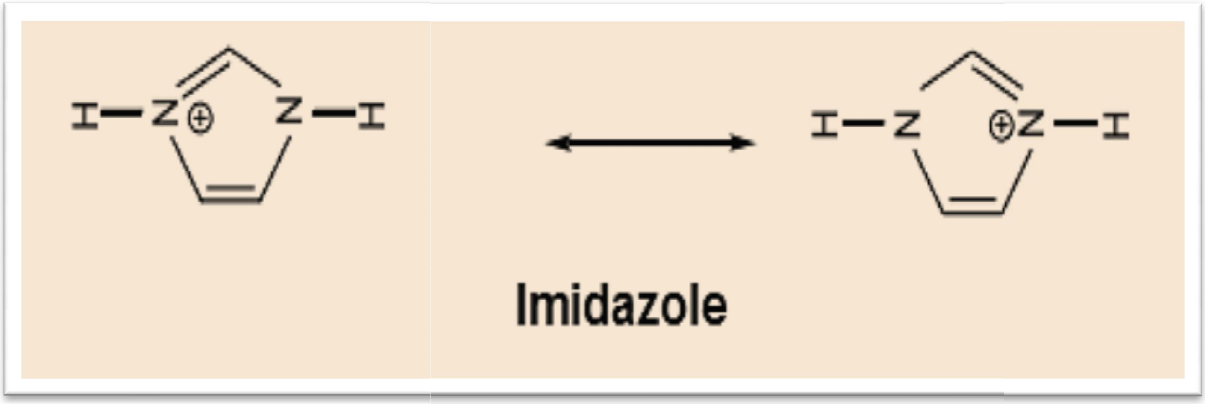
Abstract: *This review gives some information about imidazole ring as a (ligand, complex, antimicrobial, antimalarial, anticancer, uses, applications, linked with active groups such as Schiff base, azo group)*

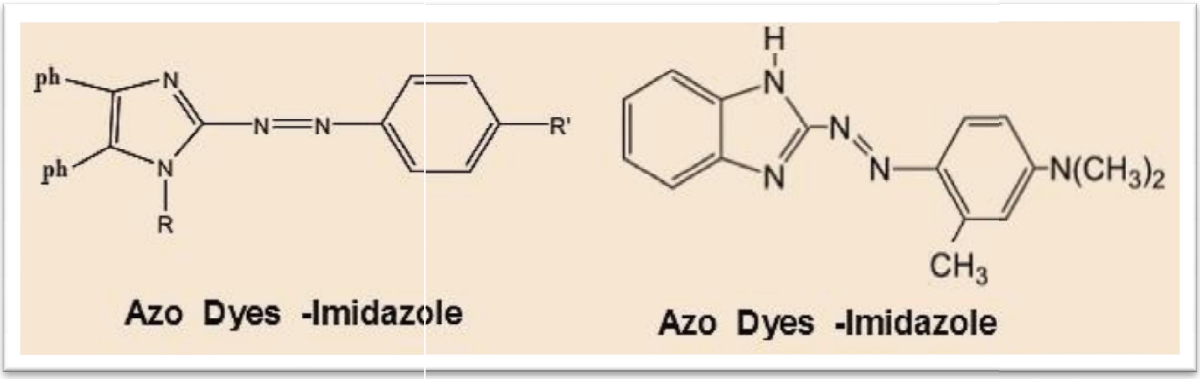
Keywords: Uses, Applications

I. INTRODUCTION

Imidazole ring has five membered ring systems that contain hydrogen binding domain, and electron donor nitrogen system [1-3].The first imidazole was described by Fischer (1882), but the nature of the ring system was demonstrated by Freud and Kuhn (1890). Imidazole is important because their biological activity among their isomer, particularly the



imidazole possessed a broad spectrum of biological activities including antimicrobial antituberculosis antioxidant anti-inflammatory anticonvulsants antidepressant and anxiolytic antihypertensive anticancer and antifungal activity
Also, studying reported that many imidazole derivatives were dissolved in diluted acid, and coupling reaction hours at (0) ^{0}Cto give final product. [1-10]



Coupling reaction that containing compounds react with and aromatic primary amine to produce imidazole- azo dyes these compounds have wide attention because of their pharmacological activities such as hypertensive agents, anticholinergic agents, antispasmodics anticancer agents, oxo-tremorine antagonists and antibacterial agents [11-14]

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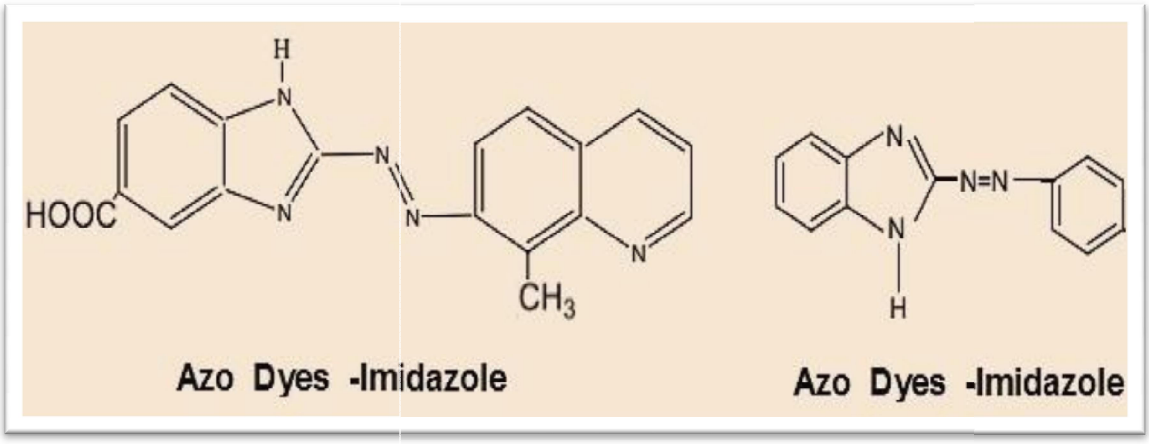
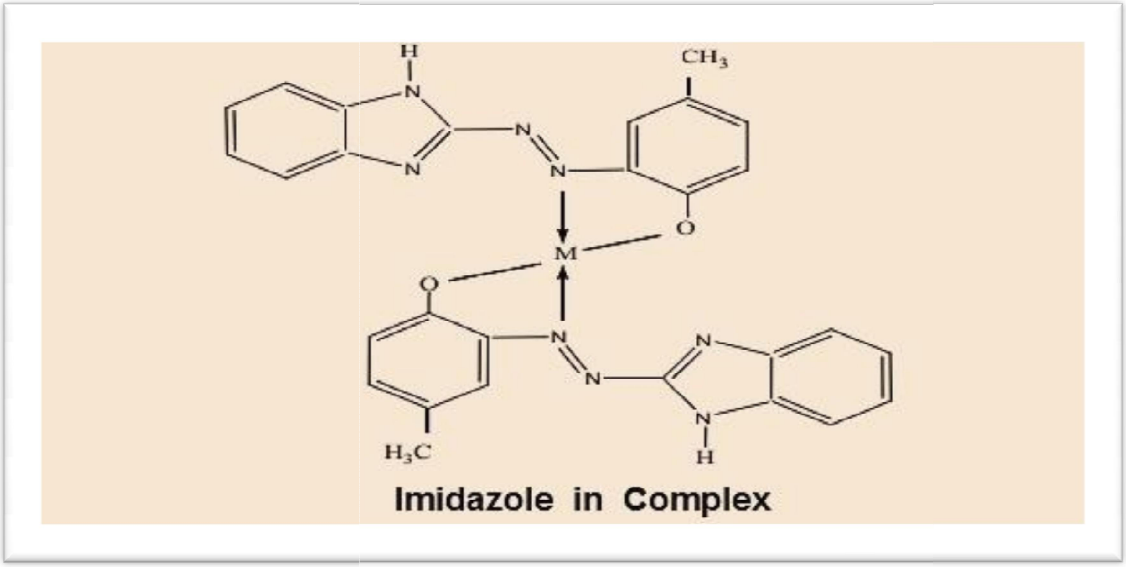


Other paper synthesize dazo dyes- linked with phenol derivative from coupling reaction with different compounds in presence of diluted hydrochloric acid to yield ligands then complexation with some ions: [15-19]



On the other hand, other paper reported that imidazole – mannich derivatives were prepared through reaction of secondary aromatic amine compound with carbonyl compound in presence of strong base, this mixture was stirred for (5) hours to formation many antibacterial compounds: [2224]

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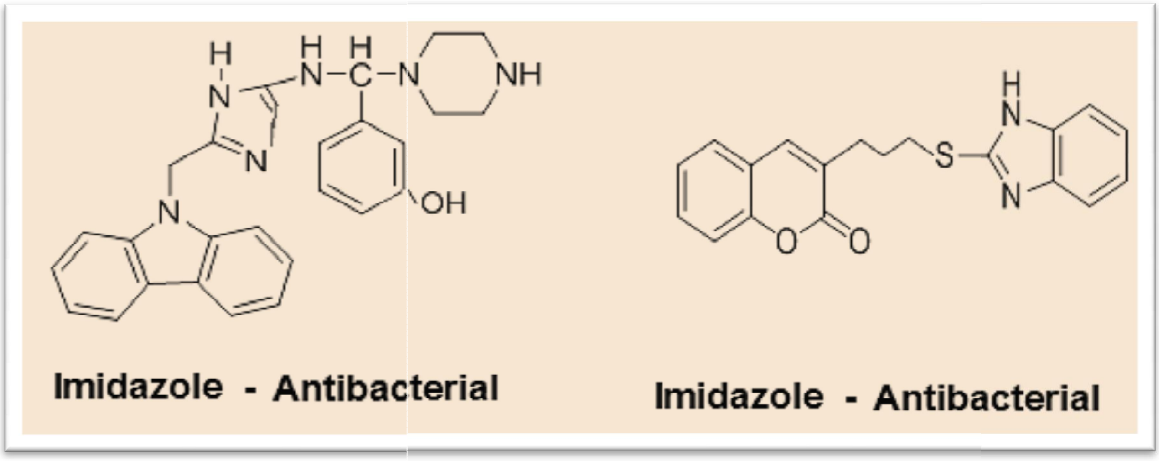
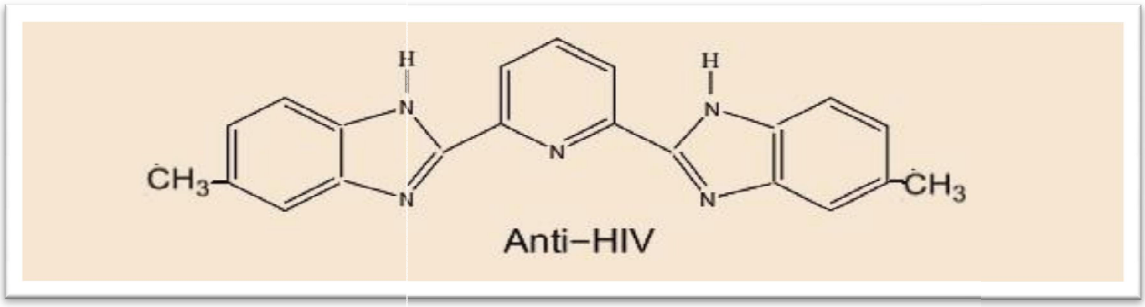
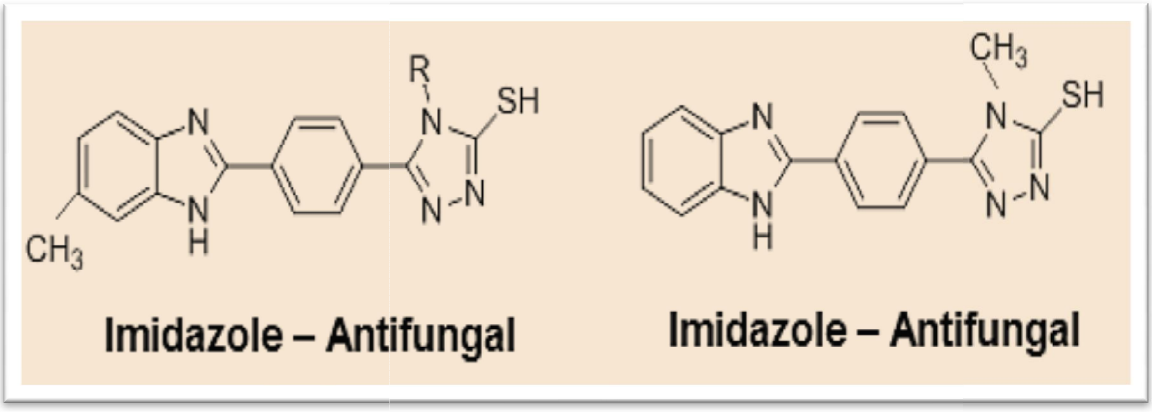


While studying used bis- carboxylic acid and diamine compounds in closure conditions under refluxing for (6) Hrs then basified to give imidazole derivative as anti- HIV:



But in paper reacted the imidazole with triazole in existence of closure conditions in DMF and stirred for (16) hours at room temperature then refluxing for (7) hrs to give final product antifungal compounds:



On the other handresearcher added imidazole ring to sulfur and nitrogen compounds to formation compounds involving antitumor activities:

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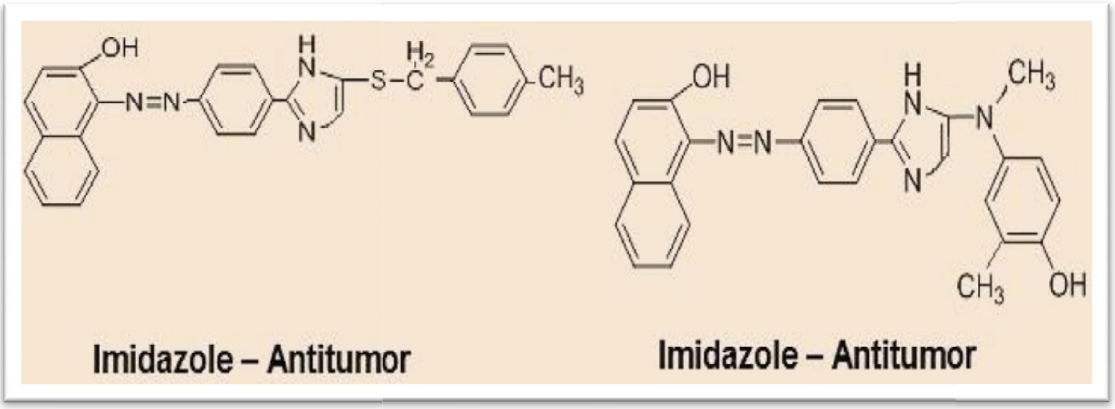
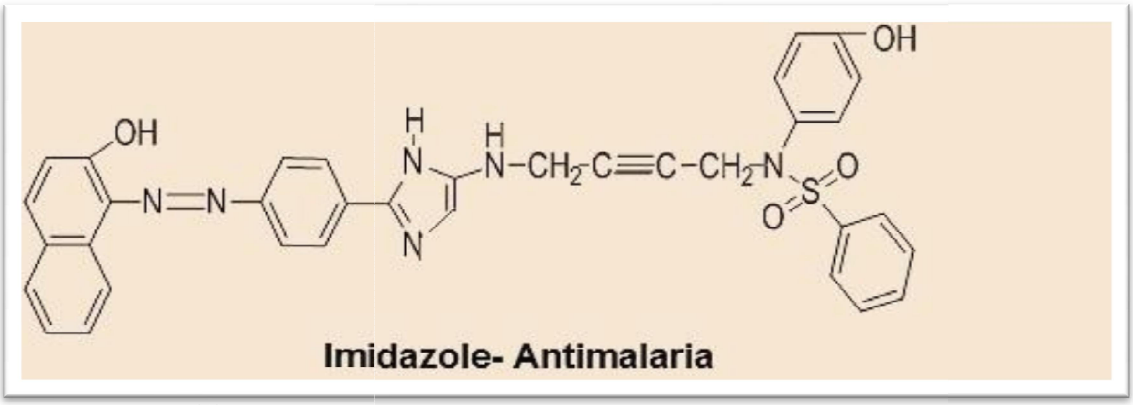
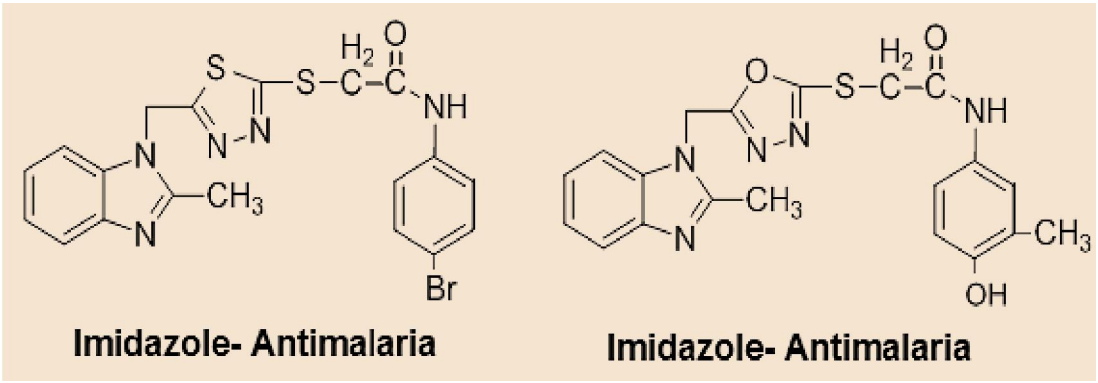


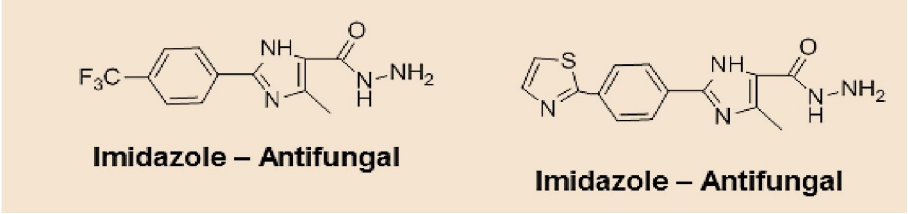
In new paper reported the preparation of imidazole-azo with sulphone compounds as antimlaria compounds:



Antmalaria compounds [61] were yield from reaction of imidazole compound with active ring from thiadiazole or oxdiazole ring:



But other studying [61] formatted hydrazo- imidazole derivatives as antifungal compounds



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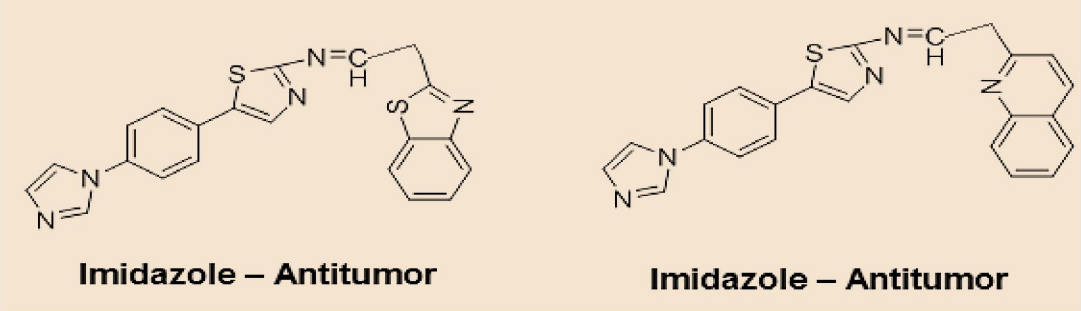
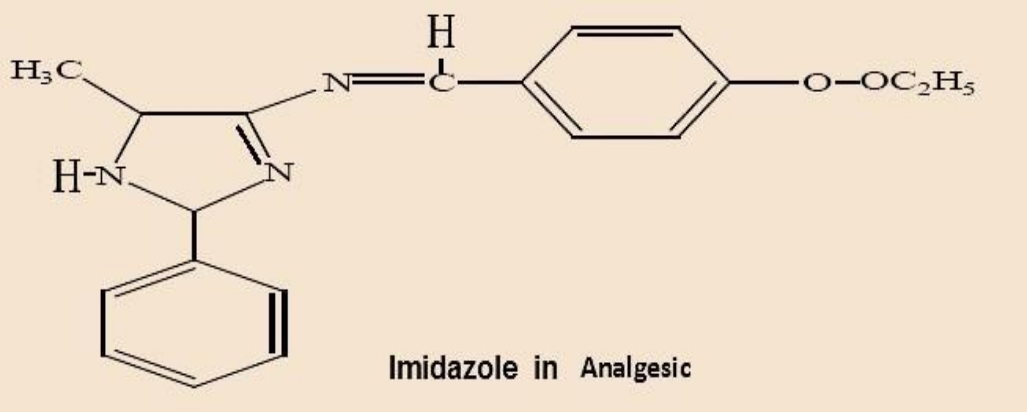
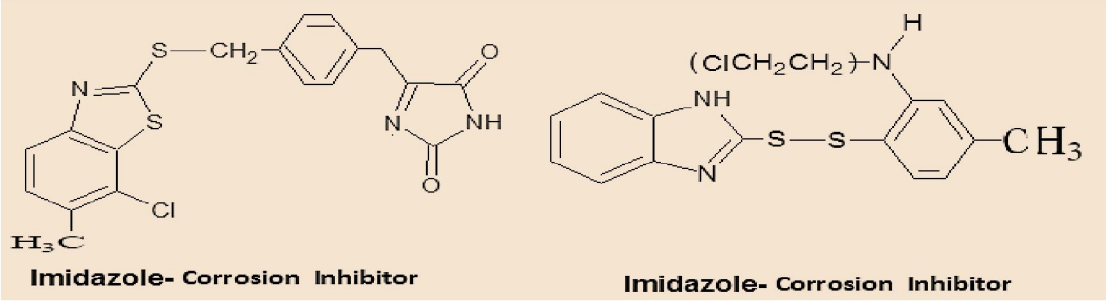
Paper succeed to format imidazole – imine compounds from substituted compound reacted with different aldehydes under reflux (4) hours.



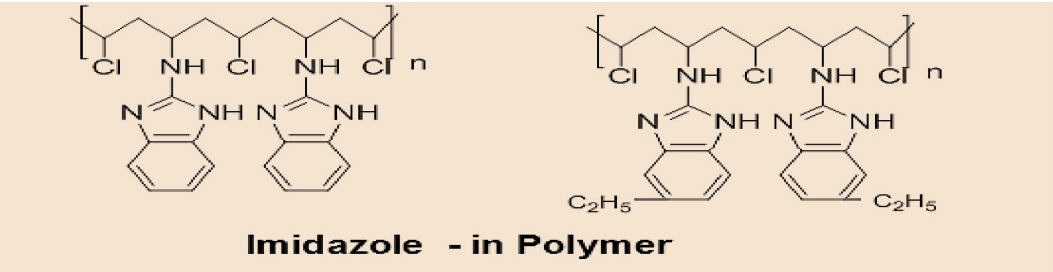
Other literature: prepared azomethine –imidazole as analgesic by reaction of aromatic aldehydes with amine imidazole:



Imidazole derivative was prepared by reaction of benzimidazole[) with sulfur or disulfide compounds to formation corrosion inhibitors compounds:



Studying prepared polymer (vinyl chloride) dissolved in dry tetrahydrofuran, in reaction with amine under reflux for (7) hours to give final products as a polymers.



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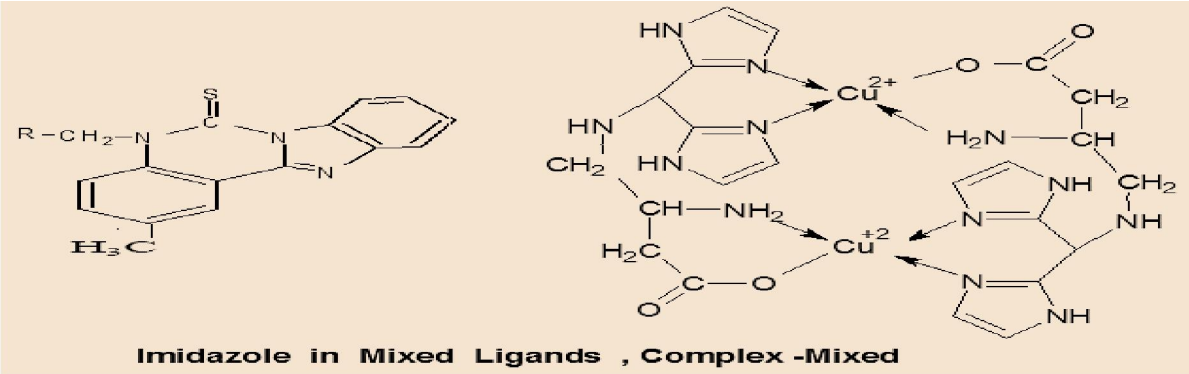
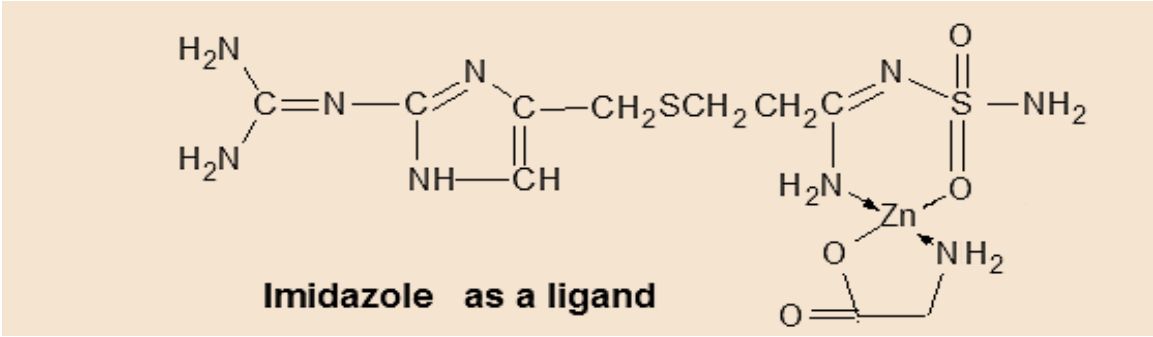
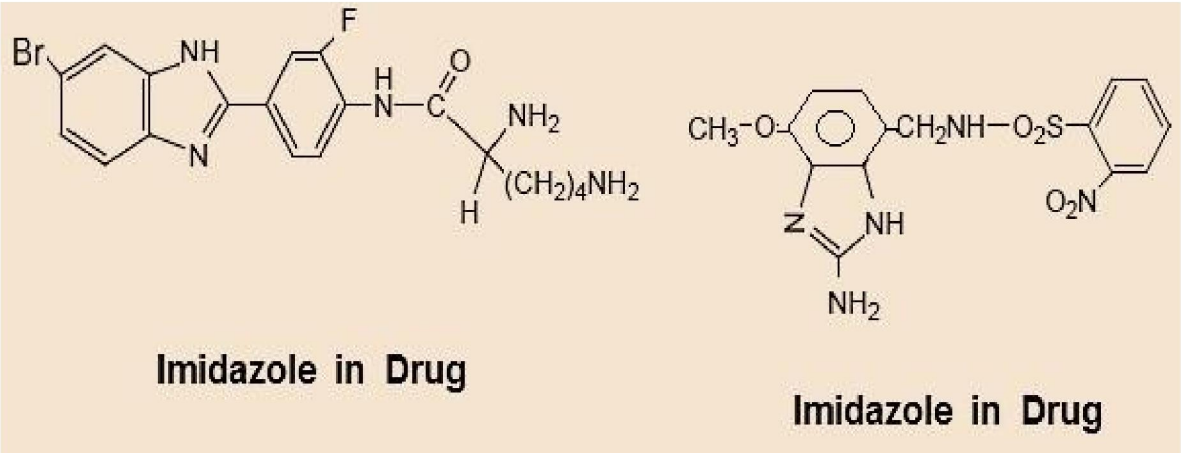
Imidazole in Mixed Ligands, Complex –Mixed, which prepared from condensation reaction of diamine compounds with carbonyl compounds:



Also in other studying, imidazole ligand was prepared from sulphone derivative:



Other imidazole compounds were prepared as drugs in medical fields:



But in new studies, imidazole compounds were prepared as antitumor in medicinal fields:

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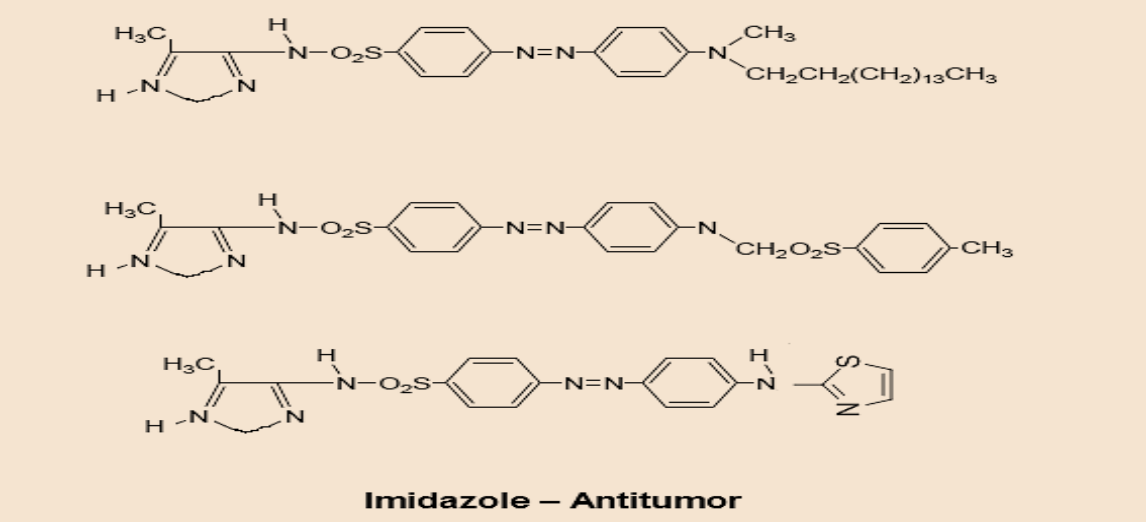
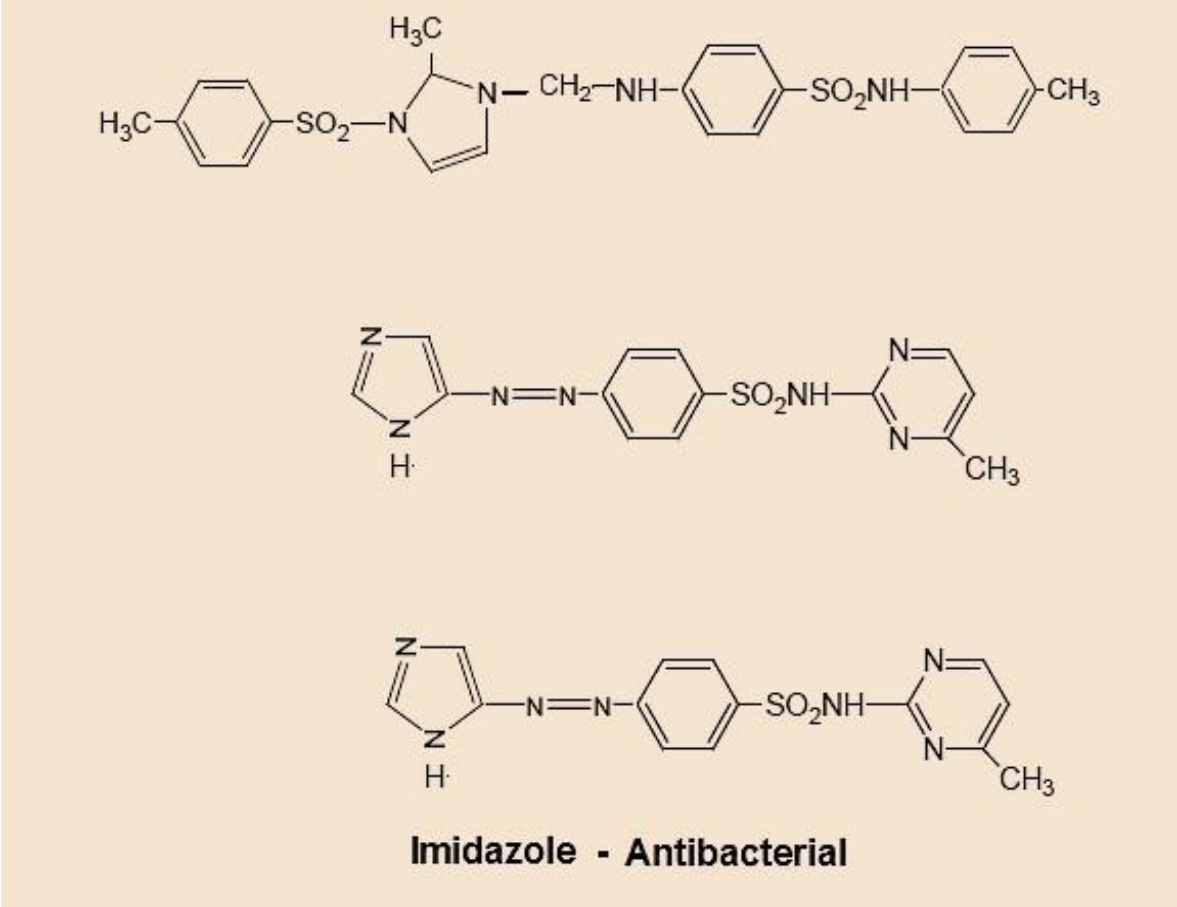


Imidazole – Antitumor

And other paper, antibacterial sulphonamide compounds were synthesized:



Imidazole - Antibacterial

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