

Bridging catalysis and bioactivity: ruthenium(II) and gallium(III) compounds for both applications

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Organometallic compounds, particularly those incorporating transition metals, have played a pivotal role in modern chemistry by enabling chemical transformations that are challenging or even inaccessible to perform through classical synthetic routes.[1] Within this broad class, ruthenium complexes stand out as fascinating versatile systems, finding widespread application not only in catalysis but also in other remarkable fields, such as material science and biochemistry.[2]

In parallel, gallium-based compounds have emerged as promising candidates in medicinal chemistry, owing to their notable antimicrobial and anticancer properties, as well as their established use in nuclear medicine through radioactive derivatives.[3]

In this communication, we present the design and synthesis of a series of ruthenium(II) and gallium(III) compounds stabilized by phosphine- and amino-based ligands. The catalytic performance of the ruthenium coordination compounds under homogeneous and biphasic conditions is also reported, together with the results of preliminary biological evaluations conducted on both ruthenium and gallium systems.

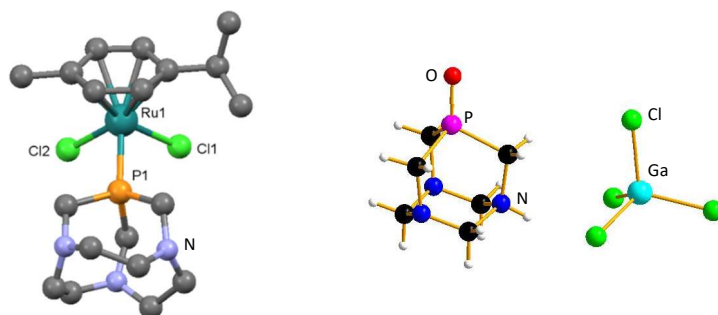


Figure 1. Picture of a ruthenium-phosphine complex (left) and a gallium-phosphine oxide derivative (right).

References

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