SUPPLEMENTARY MATERIAL

Insecticidal and fungicidal activity of a magnesium compound containing isovanillic acid against leaf-cutting ant and its symbiotic fungus

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EXPERIMENTAL SECTION

Synthesis of MgPhenIso complexes. In 20.0 mL of methanol, $Mg(CH_3COO)_2 4.H_2O$ (0.86 g; 4.00 mmol), 1,10′-phenanthroline, (0,76 g; 4.20 mmol), and isovanillic acid (0.70 g; 4.20 mmol) and triethylamine (580 µL, 4.20 mmol) was added. The solution was stirred under N_2 atmosphere for 2h at reflux temperature. The reaction was filtered, and the excess of solvent was removed by rotary evaporation and 10.0 mL of cold water was added to the remaining solution. The precipitate was filtered, washed with water, and dried under vacuum.

The synthesis of the MgPhenIso complex using 1:1:1 proportion of reactants in methanol with triethylamine produced of a mixture of hexacoordinated and tetracoordinated complexes.

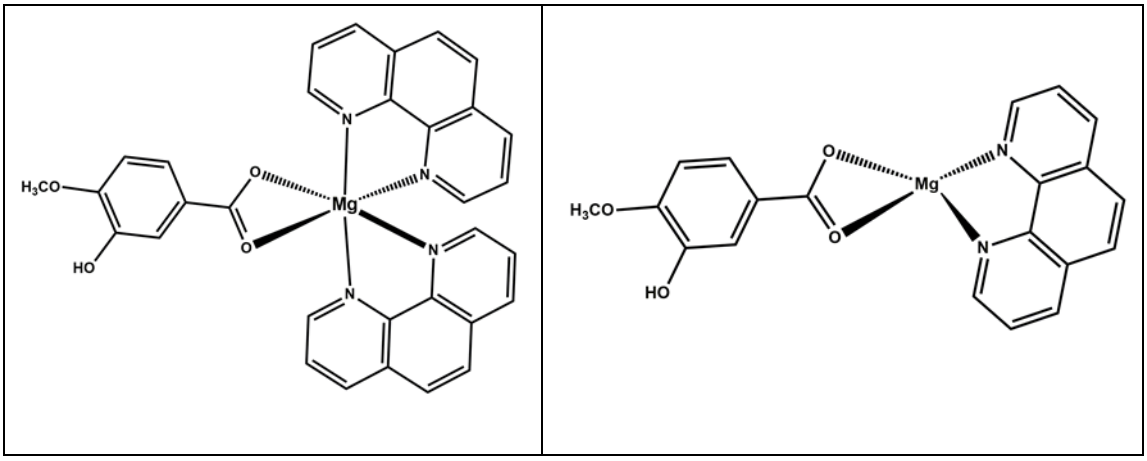

Figure 1S. *Chemical structures observed in solution by MS; the structures of the hexacoordinated and tetracoordinated complexes*

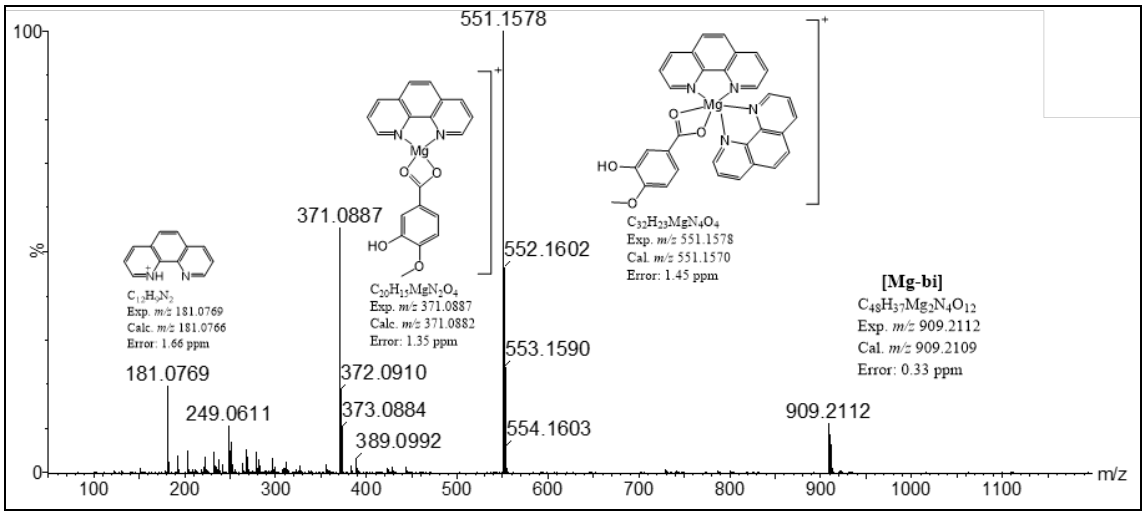

Figure 2S. *ESI(+)-MS spectrum of a freshly prepared methanolic solution of the MgPhenIso complex*

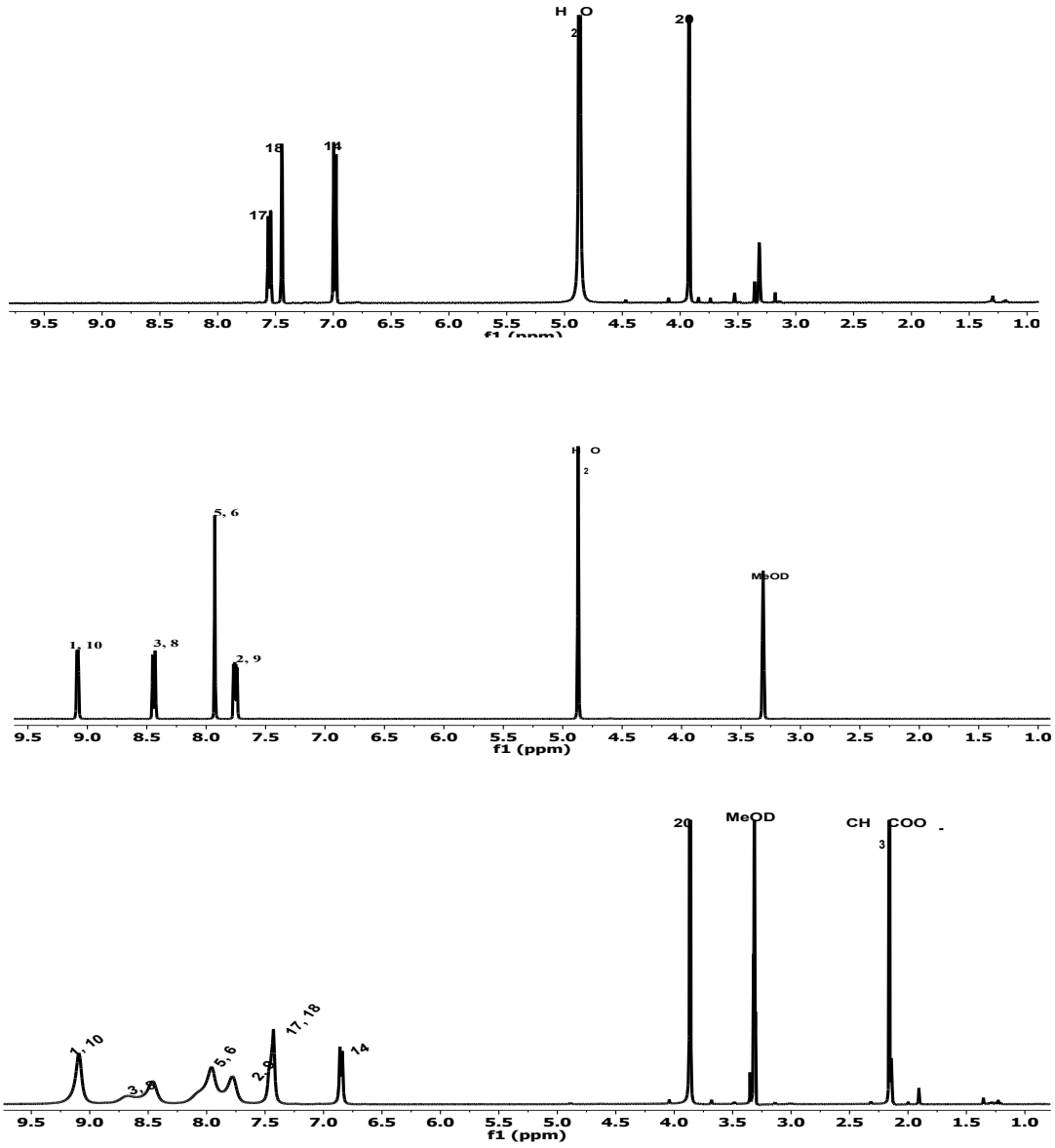

Figure 3S. *^{1}H-NMR in MeOD-d_4 at 25°C of the MgPhenIso complex (bottom), 1,10'-phenanthroline (middle) and isovanillic acid (top)*