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Coordination Chemistry

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HR EXCELLENCE IN RESEARCH

Tris(dimethyl pyridine-2,6-dicarboxylate)strontium tetra(isothiocyanate)cobaltate(II) with lipolytic activity biostimulatory properties for the fungal strain *Rhizopus arrhizus* CNMN FD 03

PATENT: MD 4831/2022.11.30

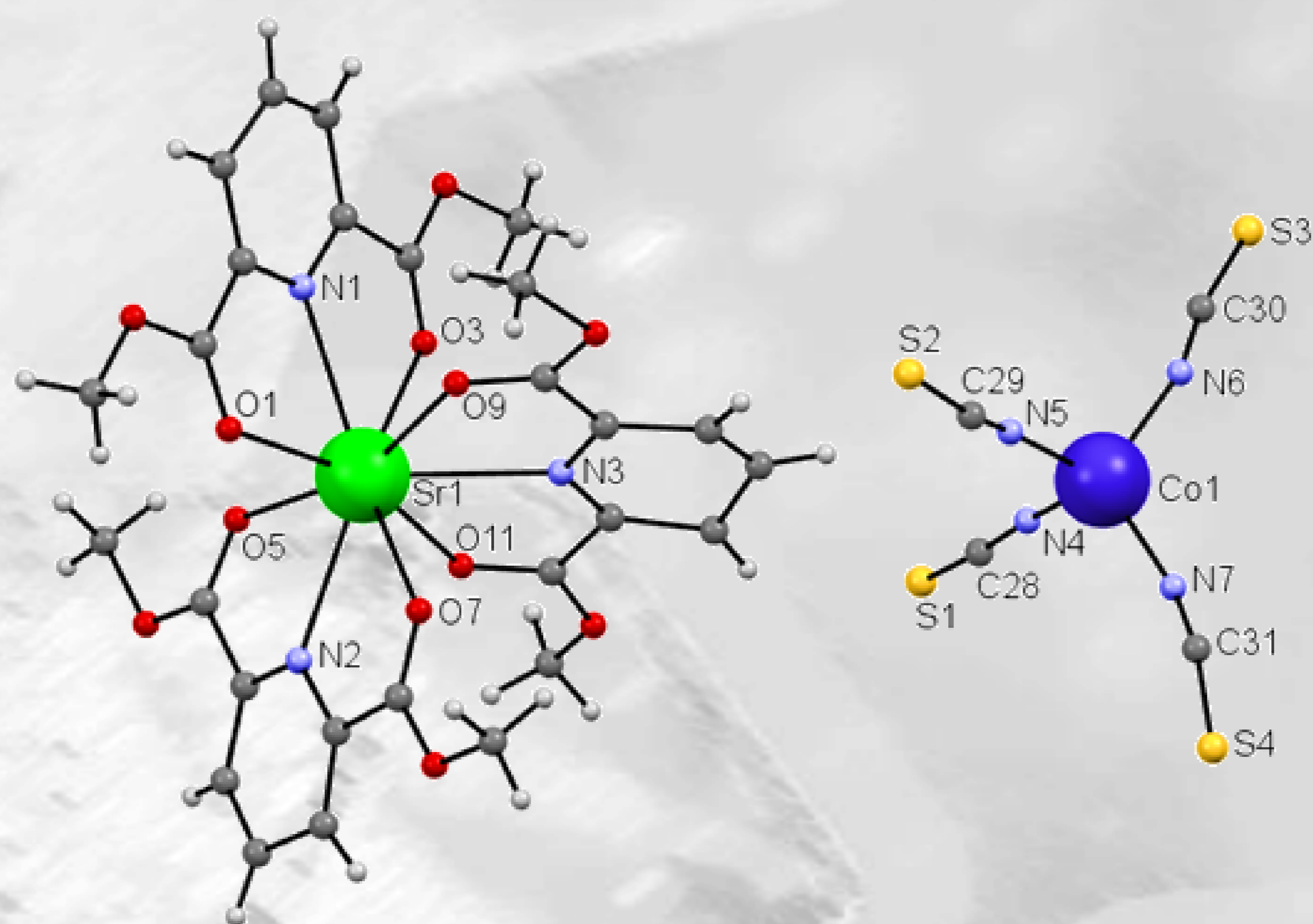
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APPLICATION FIELDS: Agriculture – Horticulture – Gardening

AIM: coordination chemistry and microbiology, especially in the synthesis of a compound of Sr(II) and Co(II), which can be used as a stimulator of lipolytic activity in the fungal strain *Rhizopus arrhizus* CNMN FD 03.

SOLUTION: New Sr(II) and Co(II) coordination compound with dimethyl-2,6-pyridinedicarboxylate (L) ligand was obtained.

The influence of the claimed compound on the lipolytic activity of the micromycete *Rhizopus arrhizus* CNMN FD 03



Molecular structure of the compound $[\text{SrL}_3][\text{Co}(\text{NCS})_4]$

Compound	Conc., mg/L	1 st day		2 nd day	
		Activity, U/mL	%/control*	Activity, U/mL	%/control
$[\text{SrL}_3][\text{Co}(\text{SCN})_4]$	0,5	27562	153,7/146,9	20000	106,7
	1.0	21000	117,1/112,0	20000	106,7
	1,5	15312	85,4	15000	80,0
Control	-	17930	100,0	18750	100,0

*153,7/146,9 – vs. the daily control/ vs. the absolute maximum of the control (day 2)

ADVANTAGES: The synthesized $[\text{SrL}_3][\text{Co}(\text{NCS})_4]$ compound increases the activity of exocellular lipases by 12-46.9%, depending on the applied concentration. Thus, the lipolytic activity was 27562 u/mL (0.0005 g/L) and 21000 u/mL (0.0010 g/L) on the 1st day of cultivation, exceeding the level of the control sample from the same day by 53.7, respectively, 17.0% and of the witness from day 2 – with 46.9 and 12.0%, respectively. Respectively, in the same case, an intensification of the biosynthesis of lipases by 24 h in relation to the control is found.

IMPLEMENTATION STAGE: At the laboratory level.

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