

NOVEL SIX-MEMBERED RINGS WITH NITROGEN, ANTIMONY AND OXYGEN AS HETEROATOMS

by
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*Dedicated
to
my Parents*

CERTIFICATE

This is to certify that the thesis entitled **"NOVEL SIX-MEMBERED RINGS WITH NITROGEN, ANTIMONY AND OXYGEN AS HETEROATOMS"** being submitted by **Mr. Satnam Singh** to the Indian Institute of Technology, Delhi, for the award of the degree of Doctor of Philosophy in Chemistry, is a record of a bonafide research work carried out by him. Mr. Singh has worked under my guidance and supervision and has fulfilled the requirements for the submission of this thesis which, to my knowledge, has reached the requisite standard.

The results contained in this thesis have not been submitted, in part or in full, to any other University or Institute for the award of any degree or diploma.


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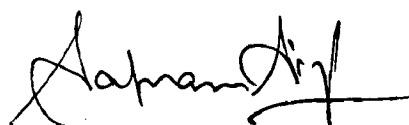
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(SATNAM SINGH)

ABSTRACT

The thesis reports the synthesis and characterisation of four types of novel organic heterocycles viz., six-membered rings with nitrogen, antimony and oxygen as heteroatoms. These are named as listed below:

1. Benzoxazastibinines
2. Alkanediylbis-benzoxazastibinines
3. Benzoxazastibininones
4. Oxazastibinanes

First type of heterocyclic compounds have been formulated as 2,2,3,4-tetrahydro-2,2,2,3-tetraaryl-1,3,2-benzoxazastibinines. These were synthesised by the reaction of disodium salt of N-(2-hydroxybenzyl)aniline with R_3SbBr_2 .

The second type of heterocycles contain two benzoxazastibinine rings. These compounds are named as 3,3'-(1,2-ethanediyl)bis-(2,2,3,4-tetrahydro-2,2,2-triaryl-1,3,2-benzoxazastibinines) and 3,3'-(1,3-propanediyl)bis-(2,2,3,4-tetrahydro-2,2,2-triaryl-1,3,2-benzoxazastibinines). Tetrasodium salt of appropriate secondary amines were allowed to react with R_3SbBr_2 for the synthesis of these alkanediylbis-benzoxazastibinines.

During the present work oxo derivative of benzoxazastibinines namely, 2,2,3,4-tetrahydro-2,2,2,3-teraaryl-1,3,

2-benzoxazastibinin-4-ones were synthesised by the reaction of R_3SbBr_2 with disodium salt of salicylanilide.

In addition to these heterocycles, novel saturated six-membered rings with nitrogen, antimony and oxygen as heteroatoms were also synthesised. These compounds were formulated as 2,2-dihydro-2,2,2,3,6-pentaaryl-1,3,2-oxazastibinanes.

The above mentioned four types of heterocyclic compounds have been characterised by elemental analyses, molecular weight determination by vapour pressure osmometry, IR, far IR, 1H and ^{13}C NMR spectroscopy. A few compounds viz., 2,2,3,4-tetrahydro-3-phenyl-2,2,2-tris(2,4,6-trimethylphenyl)-1,3,2-benzoxazastibinine, 2,2,3,4-tetrahydro-3-phenyl-2,2,2-tris(4-methylphenyl)-1,3,2-benzoxazastibinin-4-one and 3-hydroxy-1-(4-nitroanilino)-3-phenylpropane have also been characterised by mass spectral data.

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