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BROMO BENZODIAZABOROLES

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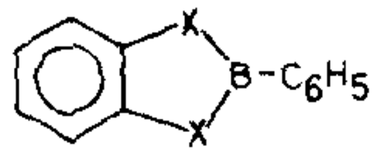
THE uses of boron heterocyclic compounds as insecticides[1], bactericides[2], fungicides, possible use in cancer therapy[3], curing agents, intermediates in organic synthesis, fuel for propellers[4], latent hardeners for resins etc aroused interest for further studies in this field. A series of analogous 2-phenyl derivaties were earlier reported[5-7] to be obtained by reacting alkyl/aryl boron dichloride or aryl boronic acids and their esters with an appropriate *o*-substituted benzene (scheme 1). The hydrolytic stability of these compounds as compared to the corresponding open chain analogues has been attributed to their being cyclic and stabilized by resonance.

The IR and UV spectra of a number of benzo- and naphthoboroles indicate close similarity with the corresponding heteroaromatic analogues[8] *e.g.* UV absorption of 2-phenyl benzimidazole is similar to that of 2-phenyl-diazaborole. Benzodiazaboroles can be described by the two forms (scheme 2).

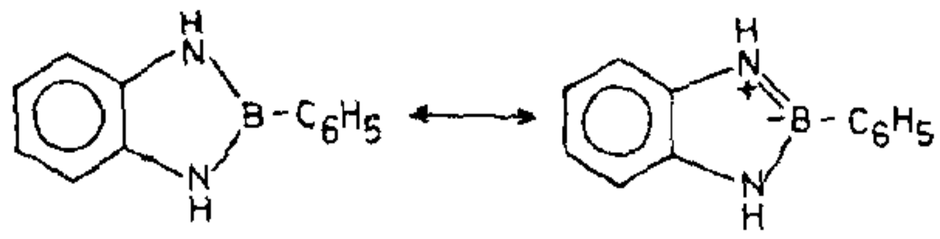
The spectra of borazole is different as compared with the complex (scheme 3).

We report here new boron containing heterocycles obtained from bromo substituted *o*-phenylenediamines and various aryl boronic acids.

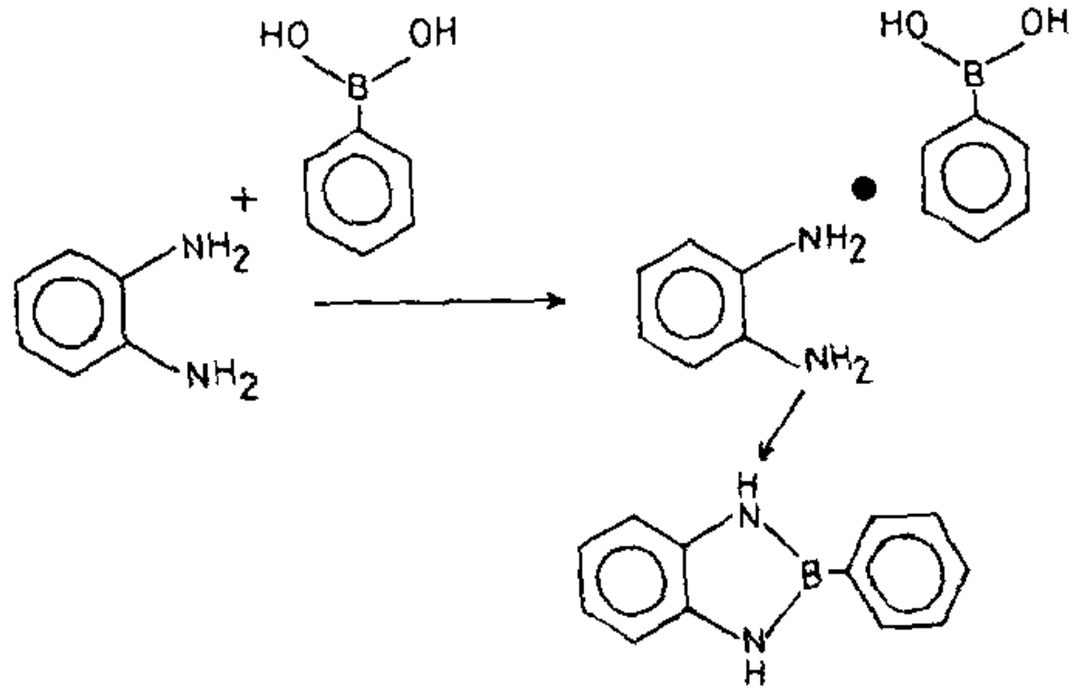


X = NH, S, O

SCHEME 1



SCHEME 2



SCHEME 3

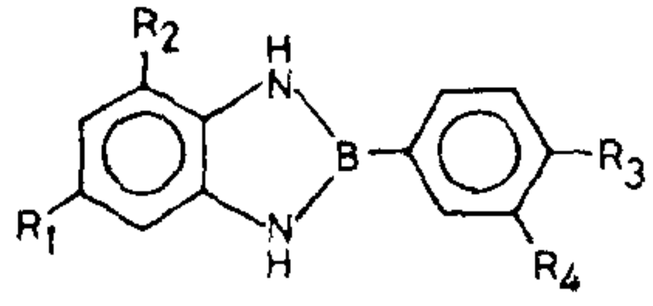
Equimolar amounts of bromo substituted *o*-phenylenediamine (0.01 mol) and aryl boronic acid (0.01 mol) dissolved in xylene were refluxed for 4–5 hr. The solvent xylene was distilled off at reduced pressure. The products were crystallized from carbon tetrachloride or benzene. The values of elemental analysis agreed with calculated values within the limits of experimental errors. The physical properties of the compounds are given in table 1.

UV absorption values show that the bromo borimidazolines exhibit two strong absorptions, first in the 230–245μ region and the other at 285–310μ. Electron-donating substituents produce a bathochromic shift in the absorption spectra, whereas electron-withdrawing groups result in a hypsochromic effect.

The infrared spectra of these borimidazolines show the absorptions for NH bands at 3470 cm^{-1} and 1435 cm^{-1}, trivalent boron at 1350 cm^{-1} and out of plane C-H modes aromatic rings at 760–750 cm^{-1}.

20 December 1984; Revised 13 August 1985

Table 1 *Bromoborimidazolines* (scheme 4)



R_1	R_2	R_3	R_4	M P°C	Yield per cent	Properties	Formula
Br	H	H	H	112–113	79.8	Colourless flakes	$C_{12}H_{10}N_2BBr$
Br	H	CH_3	H	136–137	63.7	Light brown powder	$C_{13}H_{12}N_2BBr$
Br	H	OCH_3	H	149–151	70.6	Dark brown flakes	$C_{13}H_{12}N_2OBBr$
Br	H	Br	H	158–159	74 1	Colourless shining flakes	$C_{12}H_9N_2BBr_2$
Br	H	H	NO_2	>285	62 8	Dark brown powder	$C_{12}H_9N_3BO_2Br$
Br	Br	H	H	126–128	82 1	Pinkish crystals	$C_{12}H_9N_2BBr_2$
Br	Br	CH_3	H	140–141	81.4	Light brown powder	$C_{13}H_{11}N_2BBr_2$
Br	Br	OCH_3	H	171–172	61.7	Dark brown powder	$C_{13}H_{11}N_2OBBr_2$
Br	Br	Br	H	168–169	70 1	Colourless flakes	$C_{12}H_8N_2BBr_3$
Br	Br	H	NO_2	218–220	64.9	Light brown powder	$C_{12}H_8N_3BO_2Br_2$

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ON THE FLANK (MUSK) GLAND OF THE HOUSE SHREW, *SUNCUS MURINUS BLANFORDI* (ANDERSON)

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SUNCUS MURINUS is increasingly used as an experimental animal in biomedical research. Several papers on unrelated aspects including anatomy and histology have appeared, for example on skeleton and muscular systems[1], on the anatomy and histology of stomach[2], on pituitary gland[3] and a histological account of the spleen[4]. The reproductive biology of this mammal was earlier described[5] and the chromosomal analysis of *S. murinus* from Pune was also presented[6] while the effect of vasectomy on epididymis was noted[7]. With a view to presenting a consolidated picture, anatomical and histological studies in the form a monograph were undertaken. During this monographic study a number