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Synthesis of Novel Bis(1-Benzyl-2-Alkylthio-5- Imidazolylcarbonyl)Ethylenediamine

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Object: Some bis(1-benzyl-2-alkylthio-5-imidazolylcarbonyl)ethylenediamines were synthesized which is anticipated to recognize DNA sequence specifically and to cleave it at predetermined site. Therefore a new and effective anticancer drug can be exploited.

Method: 1-Benzyl-2-mercapto-5-hydroxymethylimidazole(1) was first synthesized from dihydroxyacetone, potassium thiocyanate and benzylamine. Alkylation of 1 with alkyl halides afforded 2-alkylthio-1-benzyl-5-hydroxymethylimidazoles(2). Oxidation of 2 with manganese dioxide gave corresponding aldehydes(3) which were further oxidized by silver oxide to the imidazolecarboxylic acids (4). Compound 4 was converted to its corresponding acid halides (5) which were directly condensed with ethylenediamine to give the title bis(1-benzyl-2-alkylthio-5-imidazolylcarbonyl)ethylene diamines(6).

Results and discussion: Title compounds and intermediates were determined structurally by means of NMR and IR spectroscopy. The whole process was convenient without column chromatography with high yield