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### Identification of Some Closely Related Potential Antidiabetic 4-Arylhydrazono-1-Guanylnitrate-3-Methyl-2-Pyrazolin-5-Ones

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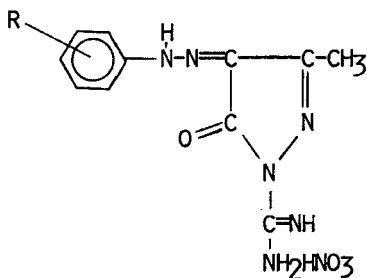
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IDENTIFICATION OF SOME CLOSELY RELATED POTENTIAL ANTIDIABETIC  
4-ARYLHYDRAZONO-1-GUANYLNITRATE-3-METHYL-2-PYRAZOLIN-5-ONES

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As an extension of our studies on thin-layer chromatographic (TLC) analysis of antineoplastics<sup>1</sup> and antidiabetics<sup>2</sup>, we investigated the TLC separation of some closely related potential antidiabetic 4-arylhydrazone-1-guanylnitrates-3-methyl-2-pyrazolin-5-ones(A).



STRUCTURE (A)

where, R represents different substituents.

A literature survey suggested that the TLC analysis of guanylpurazolinone nitrates has not been reported earlier. The present paper describes a simple and rapid TLC procedure that utilizes neutral solvent systems for the separation of compounds I-IX on silica gel adsorbent.

TABLE 1-SOLVENT COMPOSITION:

(A) Chloroform:cyclohexane: methanol (60% : 20% : 20%)

(B) Chloroform:cyclohexane: ethylmethyl ketone (55% : 25% : 20%)

No.	R	$R_f \times 100$		Detection limit ( $\mu\text{g}$ )
		A	B	
I	H	59	40	2.5
II	2-CH <sub>3</sub>	51	49	2.5
III	3-CH <sub>3</sub>	58	37	3.0
IV	4-CH <sub>3</sub>	63	55	3.5
V	2-C1	40	25	3.0
VI	3-C1	34	31	3.5
VII	4-C1	43	36	2.5
VIII	2-OCH <sub>3</sub>	30	21	2.5
IX	3-OCH <sub>3</sub>	26	24	3.0
X	4-OCH <sub>3</sub>	37	28	2.5
XI	2-OC <sub>2</sub> H <sub>5</sub>	27	20	2.5
XII	3-OC <sub>2</sub> H <sub>5</sub>	32	17	2.5
XIII	4-OC <sub>2</sub> H <sub>5</sub>	35	26	3.5
XIV	2-NO <sub>2</sub>	64	69	3.5
XV	4-NO <sub>2</sub>	68	74	3.0
XVI	2-Br	20	18	2.5
XVII	2,3-(CH <sub>3</sub> ) <sub>2</sub>	12	10	3.5
XVIII	3,5-(CH <sub>3</sub> ) <sub>2</sub>	24	15	3.5
XIX	2,6-(CH <sub>3</sub> ) <sub>2</sub>	19	11	3.5

### EXPERIMENTAL

The glass plates of the size 21.5 x 21.5 cm were coated with silica gel G (thickness 0.5 mm) with the help of stahl type applicator and were developed in glass troughs. All the guanyl nitrate pyrazolines were synthesized in the laboratory<sup>3</sup> and repeatedly recrystallized with ethanol before subjecting them to chromatographic separations. A 0.2% solution of the compound in acetone was applied to the plates with the help of a fine glass capillary. The composition of the developer used for compounds I-XX was (A) chloroform: cyclohexane: Methanol: (60% : 20% : 20%). (B) Chloroform: cyclohexane: Ethylmethyl ketone: (55% : 25% : 20%). After development the colour of the spots was light yellow which was being darkened by exposure to iodine vapours for about 1 minute. Except 4-Cl and 3-CH<sub>3</sub>, no tailing was observed in any case. The R<sub>f</sub> values obtained were found reproducible in the different identical runs and are compiled in Table 1.

### RESULTS AND DISCUSSION

The TLC data on the separation of guanyl nitrate pyrazolines are given in Table 1. The chromatographic development time of solvent systems (A-B) employed was about 40 minutes. Both the solvent systems used gave satisfactory separation of most of the compounds. The results show an interesting trend in the R<sub>f</sub> values. It is observed that in the case of ortho substituted derivatives the rate of flow (R<sub>f</sub>) of the spots is low whereas meta and para substituents increase the value of R<sub>f</sub> in comparison with that of the parent unsubstituted compound.

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