



## A Comparison of the Scotland Yard Test Amidopyrine/H<sub>2</sub>O<sub>2</sub> and “Okokit”\* in the Routine Detection of Faecal Occult Blood

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### Abstract

Concern about the possible carcinogenic properties of o-tolidine and benzidine has led to a search for less harmful reagents for use in the detection of occult blood in faeces. The new preparations — Amidopyrine and Okokit — were compared with the standard method of the Scotland Yard Test. Amidopyrine and Okokit are believed to be non-carcinogenic reagents. The active ingredient of the Ham’s reagent used in the Scotland Yard Test is aminophthalhydroxide and is likewise not implicated in carcinogenesis.

The chief aim of this study was purely practical in elucidating, for purposes of sideroom testing, the efficacy of the three tests. In the Scotland Yard Test, Ham’s reagent (5 drops) is added to each labelled carton containing a faecal sample to be tested. This is followed by the addition of 5 drops of H<sub>2</sub>O<sub>2</sub>. The fluorescent blue / purple colour, indicating a positive result, appears immediately, and the shadow cast by the container wall is sufficient for the colour to be seen readily in daylight. No sample preparation is required and sequential testing of many specimens is possible using this technique.

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ISSN: 2051-7580 (Online) ISSN: 0482-3206 (Print)

Res Medica is published by the Royal Medical Society, 5/5 Bristo Square, Edinburgh, EH8 9AL

Res Medica, Spring 1972, 6(6): 25

doi:[10.2218/resmedica.v6i6.887](https://doi.org/10.2218/resmedica.v6i6.887)

# A COMPARISON OF THE SCOTLAND YARD TEST AMIDOPYRINE/H<sub>2</sub>O<sub>2</sub> AND "OKOKIT"\* IN THE ROUTINE DETECTION OF FAECAL OCCULT BLOOD

Concern about the possible carcinogenic properties of o-tolidine and benzidine has led to a search for less harmful reagents for use in the detection of occult blood in faeces. The new preparations — Amidopyrine and Okokit — were compared with the standard method of the Scotland Yard Test. Amidopyrine and Okokit are believed to be non-carcinogenic reagents. The active ingredient of the Ham's reagent used in the Scotland Yard Test is aminophthalhydroxide and is likewise not implicated in carcinogenesis.

The chief aim of this study was purely practical in elucidating, for purposes of side-room testing, the efficacy of the three tests.

In the Scotland Yard Test, Ham's reagent (5 drops) is added to each labelled carton containing a faecal sample to be tested. This is followed by the addition of 5 drops of H<sub>2</sub>O<sub>2</sub>. The fluorescent blue / purple colour, indicating a positive result, appears immediately, and the shadow cast by the container wall is sufficient for the colour to be seen readily in daylight. No sample preparation is required and sequential testing of many specimens is possible using this technique.

For the test using Amidopyrine as the reagent a spatula is used to smear a small amount of faeces onto a square of filter paper. Amidopyrine (4 drops) is dropped onto the paper followed by 2 drops of H<sub>2</sub>O<sub>2</sub>. A purple colour develops within 1 minute if the test is positive. This colour may be partially obscured by orange staining of the filter paper by faeces and Amidopyrine when the test is only weakly positive.

"Okokit" requires the same initial step of smearing filter paper with faeces. An "Okokit" tablet is placed in the centre of the smear and three drops of "Okokit" reagent dropped onto it. A blue staining of the filter paper occurs with positive specimens. The colour lasts for a few minutes, but in weakly positive specimens may be hidden by the tablet.

Fifty samples of faeces were tested by these three methods. Eighteen were positive both with the Scotland Yard Test and with "Okokit", although of these specimens two were very weakly positive. Only sixteen positives were obtained using Amidopyrine, and the two

negatives were not the same two with which "Okokit" gave a very faint positive.

\* "Okokit" — supplied by Hughes and Hughes Ltd., Brentwood, Essex.

Results—

	Scotland Yard Test	"Okokit"	Amido- pyrine
Positives	18.	18.	16.
Negatives	32.	32.	34
Sensitivity	1 : 64,000	1 : 8,000	1 : 8,000
Speed of reaction	Immediate	1 - 5 mins.	Less than 1 min.

The Scotland Yard Test, which was the cheapest of the three tests, requires the least sample preparation, shows the most immediate colour change, and is the most hygienic method in that there is no need to handle the specimen. Practically it is the simplest of the three tests to perform and positive results are easily detectable with no delay. A further advantage of the Scotland Yard Test is the ease with which it may be used on the inverted finger of a glove used for rectal examination.

Of the other two tests, that using "Okokit" was considered to be the better. One reagent only was used and provided that the optimal amount of faeces is used, the test is totally reproducible.

Amidopyrine is the most complex reagent to use and may produce false negatives as staining of the paper may obscure a faintly positive result. The reagent also deteriorates rapidly.

All three tests were examined for their sensitivity using serial dilutions of erythrocytes suspended in 0.45% (w/v) saline. The Scotland Yard Test was by far the most sensitive and may be considered by some to be too sensitive. However, in repeated estimations of the amount of occult blood in faeces, such a faint reaction as is given by trace amount of haemoglobin is not significant.

Thus, when the methods are compared on the bases of speed, simplicity, sensitivity and ease of interpretation — the most important factors in the side-room — the Scotland Yard Test is preferred on all counts. Next in order of preference comes "Okokit" because of its lack of ambiguity and relative ease of method. Amidopyrine is the least preferred of the three tests.

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