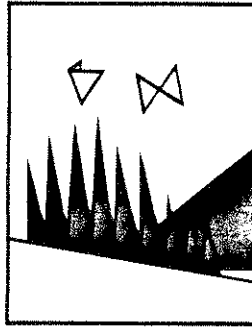


MASTER

10 57
Interim residue
report



**RESEARCH &
DEVELOPMENT
SERVICES**

**RESIDUE REPORT FOR CARBENDAZIM
IN CUCUMBERS GROWN IN
ARTIFICIAL SUBSTRATES
(C001 021/PC39)**

A D A S



AGRICULTURAL DEVELOPMENT AND ADVISORY SERVICE

RESIDUE REPORT FOR CARBENDAZIM
IN CUCUMBERS GROWN IN
ARTIFICIAL SUBSTRATES
(C001 021/PC39)

PRINCIPAL WORKERS

G M McPherson BSc, PhD

Plant Pathologist, ADAS, Leeds

M R Harriman BSc

Horticulturalist, HRI, Stockbridge House

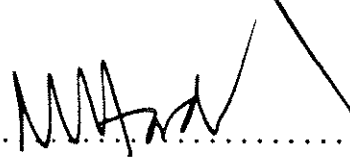
AUTHENTICATION

I declare that this work was done under my supervision according to the procedures described here-in and that this report represents a true and accurate record of the results obtained.

.....  G M McPherson
Contract Manager

Tel. 0532 611222 Ext. 4481

Date..... 28/1/92

Report authorised by:..... 

N V Hardwick BSc, PhD (Acting Head)
Dept. of Entomology & Plant
Pathology
ADAS
Lawnswood
Leeds LS16 5PY
West Yorkshire

Tel. 0532 611222 Ext. 4479

Date... 30/1/92

RESIDUE REPORT FOR CARBENDAZIM IN CUCUMBERS GROWN IN ARTIFICIAL SUBSTRATES

Introduction

Carbendazim as Bavistin WP and more recently Bavistin FL (BASF plc, Ipswich, Suffolk) has been recommended as a drench for the control of root disease in soil-grown cucumbers for many years. A large proportion of the crop (75 - 80%) is now grown hydroponically using artificial substrates, primarily rockwool. Yet there are no recommendations for benzimidazole fungicides on these hydroponic crops.

Objective

The long-term objective of this project (PC39) was to generate both efficacy and residue data in support of an On-Label Approval. It was recognised from the outset however that, in the short-term at least, the provision of residue analyses (to GLP standard) from fruit treated with carbendazim could provide the basis for a Specific Off-Label Approval (SOLA) application.

Materials and methods

Location

Horticulture Research International
Stockbridge House
Cawood
Selby
W. Yorkshire
YO8 0TZ

Sites

Following discussions with Branch H, PSD three separate glasshouse units at the above site were used in this investigation. Half of a 0.1 ha (0.25 acre) polycarbonate house (House 6) was used for a fully replicated trial artificially inoculated with Phomopsis sclerotioides and Verticillium dahliae in order to collect both efficacy and residue data from a range of fungicides including Bavistin FL. In addition two further glasshouse units (House 9 and Fairfield House 1) were used in a non-replicated study to collect residue data only and were therefore not inoculated with the pathogens.

Product

Bavistin FL, a suspension concentrate containing 500g/litre (41.7% w/w) carbendazim (MAFF No. 00218) produced by BASF plc, Agricultural Division, Lady Lane, Hadleigh, Ipswich, Suffolk, IP7 6BQ (Tel. 0473 822531) and purchased from AIS Ltd, Fir Tree House, Hemingborough, Selby, N. Yorkshire (Batch No. 281915, Date No. 0788).

Crop details

Cultivars: House 6 - cv. Corona
House 9 - cv. Rebella
Fairfield House 1 - cv. Corona

Sowing dates: House 6 - 24 December 1990
House 9 - 22 January 1991
Fairfield House 1 - 13 December 1990

Planting dates: House 6 - 21 January 1991
House 9 - 14 February 1991
Fairfield House 1 - 9 January 1991

Plot details

The replicated trial in House 6 comprised of 21 plots each containing 20 plants in two adjacent rows with 2 plants in each rockwool slab.

The non-replicated treated and untreated plots in House 9 and Fairfield House 1 each comprised 6 rockwool slabs (12 plants/plot in total).

Application details

All carbendazim applications were carried out manually to individual plants via the surface of the rockwool block and allowing it to slowly infiltrate the rockwool slab below. At each application date 500ml of a solution containing either 4ml (Treatment 3) or 10ml (Treatment 4) Bavistin FL per 100l water was applied to each plant.

Application dates

Treatments were applied at monthly intervals on 25 February, 26 March, 23 April, 21 May, 18 June, 15 July, 13 August and 10 September. Eight applications were made in total (Except in House 9 where only 7 applications were achieved). All stages in the preparation and application of the fungicides were supervised (see Annex 1).

Environment

All three trial crops were maintained at ADAS blueprint ie 21°C day temperature and 19 °C night temperature with the vent set-point at 24°C.

Irrigation regime

The irrigation regime was maintained at ADAS blueprint, controlled by timer and the demand due to the varying radiation levels. The aim was to achieve 20% run-off at all times. Further details can be supplied on request.

Chemical treatments

Pest & disease control was maintained using a combined programme of IPM and selected pesticides. With the exception of the experimental treatments applied, benzimidazole fungicides were not applied to the crops during these trials.

Fungaflor (imazalil) was used routinely for powdery mildew control with 4 spray applications during the season. Stem disease (Botrytis and Mycosphaerella) control was maintained with Rovral (iprodione) and Bravo 500 (chlorothalonil) used in an alternating programme with 5 sprays in total. Two sprays of Filex (propamocarb hydrochloride) were applied to the root zone immediately post-planting and again 2-3 weeks later for the control of Pythium. In addition a 3 spray programme of Torque (fenbutatin oxide) was used for the control of red spider mite followed by a final spray of Childion (dicofol/tetradifon). All treatments were applied according to manufacturers recommendations.

Sample collection for residue analysis

In the replicated trial (House 6) a minimum of four cucumber fruit/plot were picked by hand 24, 48 and 72 hours after 4, 6, 7 and 8 carbendazim applications in Treatments 1 (untreated), 3 (4ml Bavistin FL/100l water) and 4 (10ml Bavistin FL/100l water). Fruit from the three replicates were bulked for analysis. In House 9 and Fairfield House 1 a minimum of four fruit/plot were collected for analysis at each sampling date. The fruit harvested from each plot were immediately placed in labelled, sealed, polythene bags. Remaining fruit harvested from the trial was discarded.

Storage of samples

All harvested fruit awaiting analysis was immediately placed in a deep freeze maintained at -20 °C.

Transportation of samples

Fruit samples taken after the last application of carbendazim (Eighth application on 10 September: House 6 & Fairfield House 1. Seventh application on 13 August: House 9) were transported to G C Laboratories Ltd, Faldo Road, Barton-Le-Clay, Bedfordshire MK25 4RL on 22 October for analysis. Samples were transported in insulated crates and upon receipt were immediately returned to deep freeze facilities maintained at -20°C.

Note: Samples from House 9 after eight applications of carbendazim could not be obtained as the crop was terminated prematurely for reasons outside our control.

Method of analysis

See Annex II entitled "Determination of carbendazim residues in cucumbers", provided by G C Laboratories Ltd, Ipswich, Suffolk.

Results

Carbendazim levels in the analysed fruit (see Annex II) were very low ranging from 0.08 - 0.27mg/kg carbendazim in the bulked samples taken from the replicated trial in the polycarbonate House 6. This compared with a background detection level in the untreated of 0.02 - 0.05mg/kg carbendazim. Similar results were obtained in the unreplicated plots in House 9 and Fairfield House 1. The UK Maximum Residue Limit (MRL) is 0.5mg/kg carbendazim.

Application of carbendazim as Bavistin FL applied on eight occasions, even at the higher rate tested (500ml/plant of a solution containing 10ml product/100litres water), achieved levels of carbendazim residues in the harvested fruit well within the UK MRL of 0.5mg/kg when fruit samples were taken 24-72 hours after application.

It is suggested that a Specific Off-Label Approval (SOLA) application is made for the use of carbendazim as Bavistin FL on substrate-grown cucumbers. The application should be for the higher rate of use ie 500ml/plant of a solution containing 10ml product/100 litres water with a maximum of eight applications per crop at monthly intervals. A minimum harvest interval of 24 - 48 hours should be requested.

Acknowledgements

I would like to acknowledge the financial support provided by the Horticultural Development Council for this project. I would also like to thank colleagues in the ADAS Entomology/Plant Pathology Dept. at Leeds and at HRI, Stockbridge House for their assistance throughout.


Storage of data

The raw data from this trial will be stored for a minimum of 5 years in the Department of Entomology and Plant Pathology, ADAS, Leeds.

Application Number: 3rd.

Date: 23/4/91

Name: Jim Wright

Countersigned: 

Weight of Bavishn container and lid: —

Start:

1191.6 g
1185.9 g

Difference:

5.7 g

0.40ml Bavishn (T3)

	Bottle + lid	+ Bavishn	Wt Bavishn
Rep 1	4.61 g	5.08 g	0.47 g
Rep 2	4.54 g	5.00 g	0.46 g
Rep 3	4.45 g	4.92 g	0.47 g
		TOTAL	1.40 g

1.00ml Bavishn (T4)

	Bottle + lid	+ Bavishn	Wt Bavishn
Rep 1	4.501 g	5.68 g	1.17 g
Rep 2	4.47 g	5.64 g	1.17 g
Rep 3	4.30 g	5.47 g	1.17 g
		TOTAL	3.51 g

0.48ml Bavishn (3A + 3B)

	Bottle + lid	+ Bavishn	Wt Bavishn
	4.53 g	5.09 g	0.56 g

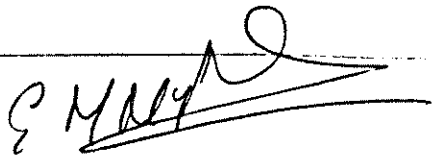
Total Bavishn in bottles:

5.47 g

discrepancy spillage

Application Number: 4th.

Date: 17/May/91

Name: Jim Wright | Countersigned: 

Weight of Bavishn container and lid: —

Start:

1182.5 g

 Difference

5.6 g

Finish

1176.9 g

0.40ml Bavishn (T3)

	Bottle + lid	+ Bavishn	Wt Bavishn			
Rep 1	<table border="1"><tr><td>4.50 g</td></tr></table>	4.50 g	<table border="1"><tr><td>4.98 g</td></tr></table>	4.98 g	<table border="1"><tr><td>0.48 g</td></tr></table>	0.48 g
4.50 g						
4.98 g						
0.48 g						
Rep 2	<table border="1"><tr><td>4.43 g</td></tr></table>	4.43 g	<table border="1"><tr><td>4.91 g</td></tr></table>	4.91 g	<table border="1"><tr><td>0.48 g</td></tr></table>	0.48 g
4.43 g						
4.91 g						
0.48 g						
Rep 3	<table border="1"><tr><td>4.28 g</td></tr></table>	4.28 g	<table border="1"><tr><td>4.75 g</td></tr></table>	4.75 g	<table border="1"><tr><td>0.47 g</td></tr></table>	0.47 g
4.28 g						
4.75 g						
0.47 g						
		TOTAL	<table border="1"><tr><td>1.43 g</td></tr></table>	1.43 g		
1.43 g						

1.00ml Bavishn (T4)

	Bottle + lid	+ Bavishn	Wt Bavishn			
Rep 1	<table border="1"><tr><td>4.59 g</td></tr></table>	4.59 g	<table border="1"><tr><td>5.76 g</td></tr></table>	5.76 g	<table border="1"><tr><td>1.17 g</td></tr></table>	1.17 g
4.59 g						
5.76 g						
1.17 g						
Rep 2	<table border="1"><tr><td>4.54 g</td></tr></table>	4.54 g	<table border="1"><tr><td>5.71 g</td></tr></table>	5.71 g	<table border="1"><tr><td>1.17 g</td></tr></table>	1.17 g
4.54 g						
5.71 g						
1.17 g						
Rep 3	<table border="1"><tr><td>4.64 g</td></tr></table>	4.64 g	<table border="1"><tr><td>5.80 g</td></tr></table>	5.80 g	<table border="1"><tr><td>1.16 g</td></tr></table>	1.16 g
4.64 g						
5.80 g						
1.16 g						
		TOTAL	<table border="1"><tr><td>3.50 g</td></tr></table>	3.50 g		
3.50 g						

0.48ml Bavishn (3A+3B)

Bottle + lid	+ Bavishn	Wt Bavishn			
<table border="1"><tr><td>4.50 g</td></tr></table>	4.50 g	<table border="1"><tr><td>5.06 g</td></tr></table>	5.06 g	<table border="1"><tr><td>0.56 g</td></tr></table>	0.56 g
4.50 g					
5.06 g					
0.56 g					

Total Bavishn in bottles

5.49 g

Application Number: 5th

Date: 17/6/21

Name: Jim Wright

Countersigned: ~~SMH~~

Weight of Bavishn container and lid: —

Start:

1172.5	g
1166.8	g

Difference

5.7	g
-----	---

0.40ml Bavishn (T3)

	Bottle + lid	+ Bavishn	Wt Bavishn						
Rep 1	<table border="1"><tr><td>4.54</td><td>g</td></tr></table>	4.54	g	<table border="1"><tr><td>5.02</td><td>g</td></tr></table>	5.02	g	<table border="1"><tr><td>0.48</td><td>g</td></tr></table>	0.48	g
4.54	g								
5.02	g								
0.48	g								
Rep 2	<table border="1"><tr><td>4.55</td><td>g</td></tr></table>	4.55	g	<table border="1"><tr><td>5.02</td><td>g</td></tr></table>	5.02	g	<table border="1"><tr><td>0.47</td><td>g</td></tr></table>	0.47	g
4.55	g								
5.02	g								
0.47	g								
Rep 3	<table border="1"><tr><td>4.60</td><td>g</td></tr></table>	4.60	g	<table border="1"><tr><td>5.08</td><td>g</td></tr></table>	5.08	g	<table border="1"><tr><td>0.48</td><td>g</td></tr></table>	0.48	g
4.60	g								
5.08	g								
0.48	g								
		TOTAL	<table border="1"><tr><td>1.43</td><td>g</td></tr></table>	1.43	g				
1.43	g								

1.00ml Bavishn (T4)

	Bottle + lid	+ Bavishn	Wt Bavishn						
Rep 1	<table border="1"><tr><td>4.48</td><td>g</td></tr></table>	4.48	g	<table border="1"><tr><td>5.65</td><td>g</td></tr></table>	5.65	g	<table border="1"><tr><td>1.17</td><td>g</td></tr></table>	1.17	g
4.48	g								
5.65	g								
1.17	g								
Rep 2	<table border="1"><tr><td>4.60</td><td>g</td></tr></table>	4.60	g	<table border="1"><tr><td>5.77</td><td>g</td></tr></table>	5.77	g	<table border="1"><tr><td>1.17</td><td>g</td></tr></table>	1.17	g
4.60	g								
5.77	g								
1.17	g								
Rep 3	<table border="1"><tr><td>4.60</td><td>g</td></tr></table>	4.60	g	<table border="1"><tr><td>5.77</td><td>g</td></tr></table>	5.77	g	<table border="1"><tr><td>1.17</td><td>g</td></tr></table>	1.17	g
4.60	g								
5.77	g								
1.17	g								
		TOTAL	<table border="1"><tr><td>3.51</td><td>g</td></tr></table>	3.51	g				
3.51	g								

0.48ml Bavishn (3A+3B)

Bottle + lid	+ Bavishn	Wt Bavishn						
<table border="1"><tr><td>4.54</td><td>g</td></tr></table>	4.54	g	<table border="1"><tr><td>5.11</td><td>g</td></tr></table>	5.11	g	<table border="1"><tr><td>0.57</td><td>g</td></tr></table>	0.57	g
4.54	g							
5.11	g							
0.57	g							

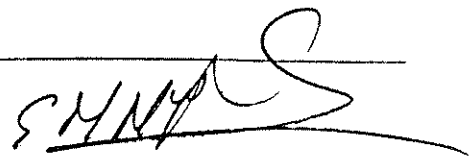
Total Bavishn in bottles

5.51	g
------	---

Application Number: 6th

Date: 15th July

Name: Jim Wright

Countersigned: 

Weight of Bavishn container and lid: —

Start:

1164.3	g
--------	---

 Difference

5.5	g
-----	---

Finish:

1158.8	g
--------	---

0.40ml Bavishn (T3)

	Bottle + lid	+ Bavishn	Wt Bavishn						
Rep 1	<table border="1"><tr><td>4.54</td><td>g</td></tr></table>	4.54	g	<table border="1"><tr><td>5.02</td><td>g</td></tr></table>	5.02	g	<table border="1"><tr><td>0.48</td><td>g</td></tr></table>	0.48	g
4.54	g								
5.02	g								
0.48	g								
Rep 2	<table border="1"><tr><td>4.55</td><td>g</td></tr></table>	4.55	g	<table border="1"><tr><td>5.02</td><td>g</td></tr></table>	5.02	g	<table border="1"><tr><td>0.47</td><td>g</td></tr></table>	0.47	g
4.55	g								
5.02	g								
0.47	g								
Rep 3	<table border="1"><tr><td>4.50</td><td>g</td></tr></table>	4.50	g	<table border="1"><tr><td>4.99</td><td>g</td></tr></table>	4.99	g	<table border="1"><tr><td>0.49</td><td>g</td></tr></table>	0.49	g
4.50	g								
4.99	g								
0.49	g								
		TOTAL	<table border="1"><tr><td>1.44</td><td>g</td></tr></table>	1.44	g				
1.44	g								

1.00ml Bavishn (T4)

	Bottle + lid	+ Bavishn	Wt Bavishn						
Rep 1	<table border="1"><tr><td>4.54</td><td>g</td></tr></table>	4.54	g	<table border="1"><tr><td>5.69</td><td>g</td></tr></table>	5.69	g	<table border="1"><tr><td>1.15</td><td>g</td></tr></table>	1.15	g
4.54	g								
5.69	g								
1.15	g								
Rep 2	<table border="1"><tr><td>4.29</td><td>g</td></tr></table>	4.29	g	<table border="1"><tr><td>5.44</td><td>g</td></tr></table>	5.44	g	<table border="1"><tr><td>1.15</td><td>g</td></tr></table>	1.15	g
4.29	g								
5.44	g								
1.15	g								
Rep 3	<table border="1"><tr><td>4.48</td><td>g</td></tr></table>	4.48	g	<table border="1"><tr><td>5.63</td><td>g</td></tr></table>	5.63	g	<table border="1"><tr><td>1.15</td><td>g</td></tr></table>	1.15	g
4.48	g								
5.63	g								
1.15	g								
		TOTAL	<table border="1"><tr><td>3.45</td><td>g</td></tr></table>	3.45	g				
3.45	g								

0.48ml Bavishn (3A+3B)

Bottle + lid	+ Bavishn	Wt Bavishn						
<table border="1"><tr><td>4.84</td><td>g</td></tr></table>	4.84	g	<table border="1"><tr><td>5.10</td><td>g</td></tr></table>	5.10	g	<table border="1"><tr><td>0.56</td><td>g</td></tr></table>	0.56	g
4.84	g							
5.10	g							
0.56	g							

Total Bavishn in bottles

5.45	g
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Application Number: 8th

Date: 9/9/91

Name: J. Wright

Countersigned: *[Signature]*

Weight of Bavishn container and lid: —

Start:

1147.1	g
1141.5	g

Difference:

5.6	g
-----	---

0.40ml Bavishn (T3)

	Bottle + lid	+ Bavishn	Wt Bavishn
Rep 1	4.58 g	5.06 g	0.48 g
Rep 2	4.54 g	5.02 g	0.48 g
Rep 3	4.41 g	4.89 g	0.48 g
		TOTAL	1.44 g

1.00ml Bavishn (T4)

	Bottle + lid	+ Bavishn	Wt Bavishn
Rep 1	4.39 g	5.55 g	1.16 g
Rep 2	4.56 g	5.73 g	1.17 g
Rep 3	4.41 g	5.59 g	1.18 g
		TOTAL	3.51 g

0.48ml Bavishn (3A+3B)

Bottle + lid	+ Bavishn	Wt Bavishn
4.56 g	5.13 g	0.57 g

Total Bavishn in bottles:

5.52	g
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DETERMINATION OF
CARBENDAZIM RESIDUES
IN
CUCUMBERS

DETERMINATION OF
CARBENDAZIM RESIDUES
IN
CUCUMBERS

DETERMINATION OF CARBENDAZIM RESIDUES IN CUCUMBERS

CONTENTS

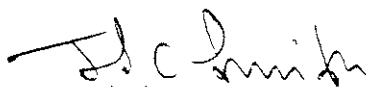
- i) Report Authentication (Page 1)
- ii) Quality Assurance Audit Statement (Page 2)
- iii) Analytical Report and Results (Pages 3 to 6)
- iv) Appendices
 - a) Calibration Data Graph (1 page)
 - b) Typical Chromatograms (4 pages)

AUTHENTICATION

Sponsors Study Ref. : Cucumbers

Our Study No. : J 7709

I, the undersigned hereby declare that this study was performed under my direction and that this report presents a true and accurate record of the results obtained. I confirm that the study was conducted in accordance with the principles of Good Laboratory Practice as defined by the United Kingdom Compliance Programme.



J.S.C. Smith

(Study Director)

6.12.91

(Date)

Your Ref:- Cucumbers

Our Ref:- J7709

QUALITY ASSURANCE AUDIT STATEMENT

STUDY TITLE:

DETERMINATION OF CARBENDAZIM RESIDUES IN CUCUMBERS

Two audits were carried out by the Quality Assurance Unit of G.C. Laboratories Ltd. The first, part of a random procedure-based inspection and the second, on a critical phase specific to this project.

	1	2
Date of Audit:-	22 October 1991	26 November 1991
Date of Report to Study Director:-	N/A	27 November 1991

The report of this study was audited by the Quality Assurance Unit, in order to assess compliance with the protocol and to confirm that it truly reflected the conduct and findings of the study.

Date of start of Audit:- 3 December 1991

Date of Report to Study Director:- 5 December 1991

Date of reply from Study Director:- 5 December 1991

Date of final agreement of Report of Study:- 5 December 1991

Signed... *J. Lamond* (J K Lamond) Date... *5.12.91* ..

Quality Assurance Officer



ANALYTICAL REPORT

TO:— Dept. of Plant Pathology,
Government Buildings,
Lawnswood,
LEEDS
W. Yorks.
LS16 5PY

FOR THE ATTENTION OF:— Dr. G.M. McPherson

OUR REF:— J7709

YOUR REF:— Cucumbers

DATE:— 1st December 1991

ENQUIRIES TO:— Mr. J.S.C. Smith

ANALYSIS OF 21 SAMPLE(S) RECEIVED ON 22nd October 1991

Determination of Carbendazim Residues in Cucumbers

1. OBJECTIVES

To measure Carbendazim residues in the submitted samples of cucumbers.

2. SAMPLE RECEIPT

The samples were received at G.C. Laboratories Ltd. on 22nd October 1991 in a frozen condition.

The project was assigned our Project Number J7709 and each sample was individually and uniquely identified with our sample numbers from C397/91/2062 to C324/91/2082 inclusive.

All samples were put into deep freeze storage immediately after labelling and were maintained at a temperature of minus 20°C or less between receipt and analysis. Temperatures of the freezers used to store the samples were read and recorded once per day. The samples have been stored in our freezers Reference Numbers 2 and 5 from receipt until the date of this report.

3. EXPERIMENTAL PROCEDURES

The samples were analysed according to G.C. Laboratories Ltd. Protocol No. RES/91/137.

Our Ref. J7709

3(a) Analytical Method

The method used was G.C. Laboratories Method No. M349 which is based on : "Analytical Methods for Residues of Pesticides", 4th Edition (1985), Multi-Residue Method 3, Submethod 2 (Ministry of Welfare, Health & Cultural Affairs Leidschendam - Netherlands). This was adapted from the procedure described by J.E. Farrow et al (Analyst, 102, 752-758, 1977).

3(b) Analytical Standard

The Analytical Standard employed was 99% pure Carbendazim supplied by Riedel-de-Haen (Our Ref. S-1148).

4. RESULTS OF ANALYSIS

4(a) Recovery Experiments

Recovery Level (mg/kg)	Our Expt.No. J7709/	Recovery %
0.501	2	101
0.251	19	102
0.050	11	94

Our Ref. J7709

4(b) Sample Residue Results

Sample No.	Treatment	Date	Our Expt. No. J7709/	Carbendazim mg/kg
1	1 Untreated	11.9.91	18	0.02
2	1 Untreated	12.9.91	20	0.04
3	1 Untreated	13.9.91	21	0.05
4	3 Bavistin 4ml/100L	11.9.91	9	0.08
5	3 Bavistin 4ml/100L	12.9.91	12	0.19
6	3 Bavistin 4ml/100L	13.9.91	13	0.13
7	4 Bavistin 10ml/100L	11.9.91	3	0.27
8	4 Bavistin 10ml/100L	12.9.91	6	0.19
9	4 Bavistin 10ml/100L	13.9.91	7	0.19
10	Fairfield Bav.4ml/100L	11.9.91	14	0.05
11	Fairfield Bav.4ml/100L	12.9.91	8	0.04
12	Fairfield Bav.4ml/100L	13.9.91	15	0.05
13	Fairfield Untreated	11.9.91	22	0.05
14	Fairfield Untreated	12.9.91	23	0.05
15	Fairfield Untreated	13.9.91	4	0.03
16	House 9 Bav.4ml/100L	14.8.91	16	0.16
17	House 9 Bav.4ml/100L	15.8.91	5	0.30
18	House 9 Bav.4ml/100L	16.8.91	17	0.25
19	House 9 Untreated	14.8.91	10	0.01
20	House 9 Untreated	15.8.91	1	0.03
21	House 9 Untreated	16.8.91	24	0.06

Our Ref. J7709

5. OTHER INFORMATION

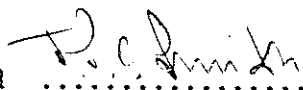
5(a) Copies of typical chromatograms from sample and recovery experiments, and also data from a linearity check, are attached in the Appendix.

5(b) All raw data, and a copy of the final report, will be stored in the archives of G.C. Laboratories Ltd., Barton-le-Clay, Beds. MK45 4RL

5(c) The Study was carried out at :-

G.C. Laboratories Ltd.
Faldo Road,
Barton-le-Clay,
Beds. MK45 4RL

The Analysis was commenced on 14th November 1991 and completed on 29th November 1991.

Signed  (J.S.C. Smith)

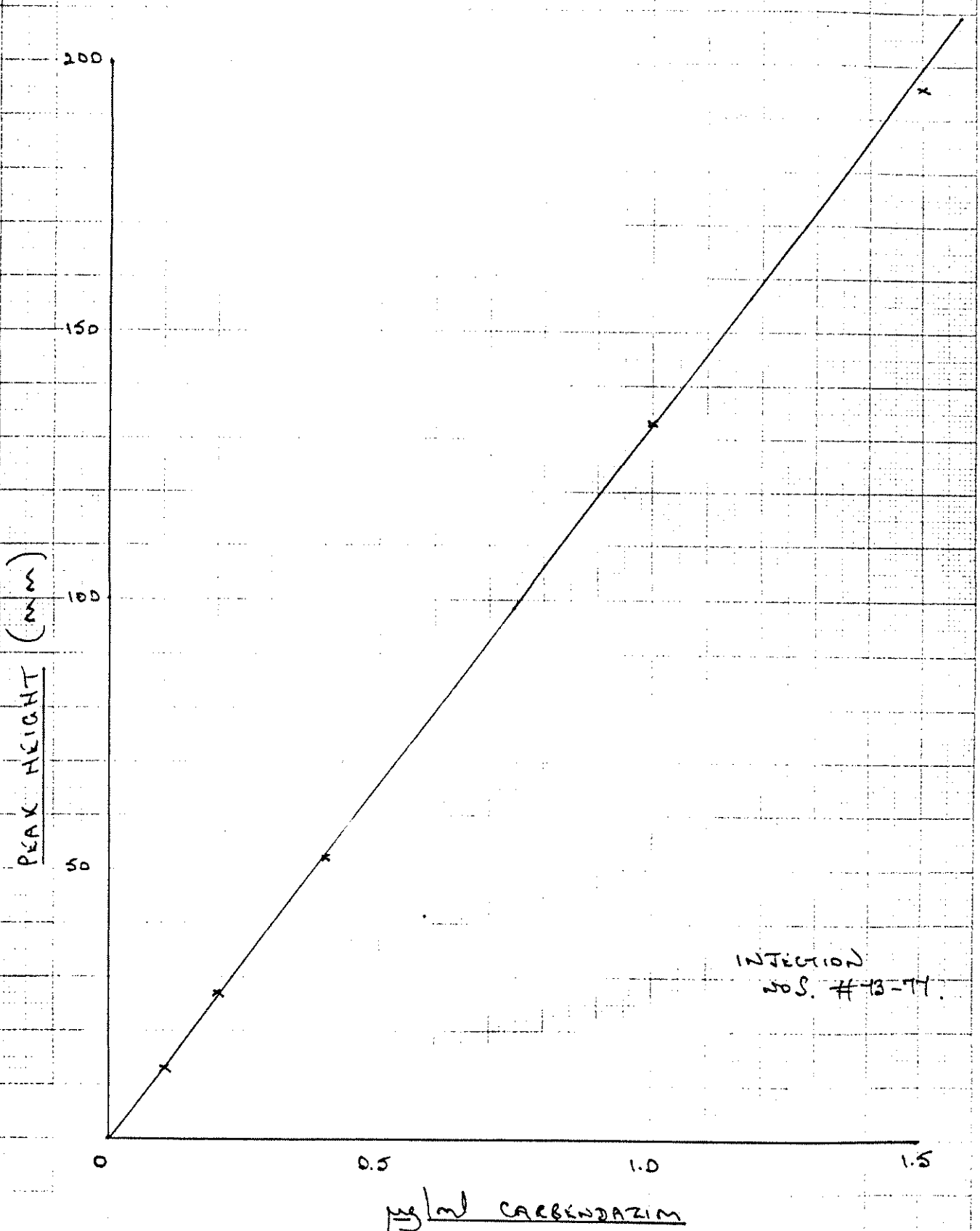
Date 6.12.91

(Study Director)

DETERMINATION OF CARBENDAZIM RESIDUES IN CUCUMBERS

CALIBRATION DATA GRAPH 29.11.91

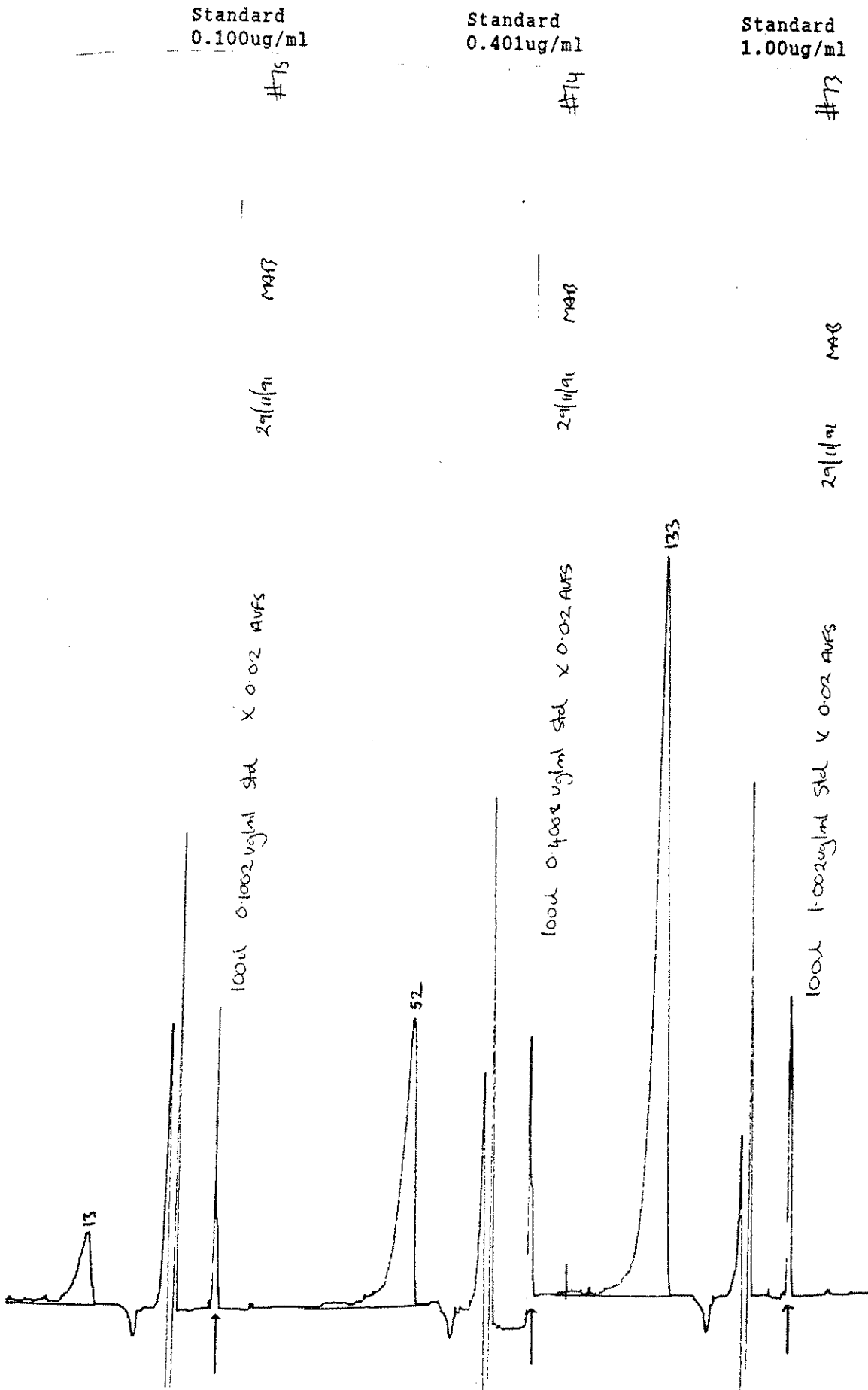
JH09



INJECTION
SOS. #13-77.

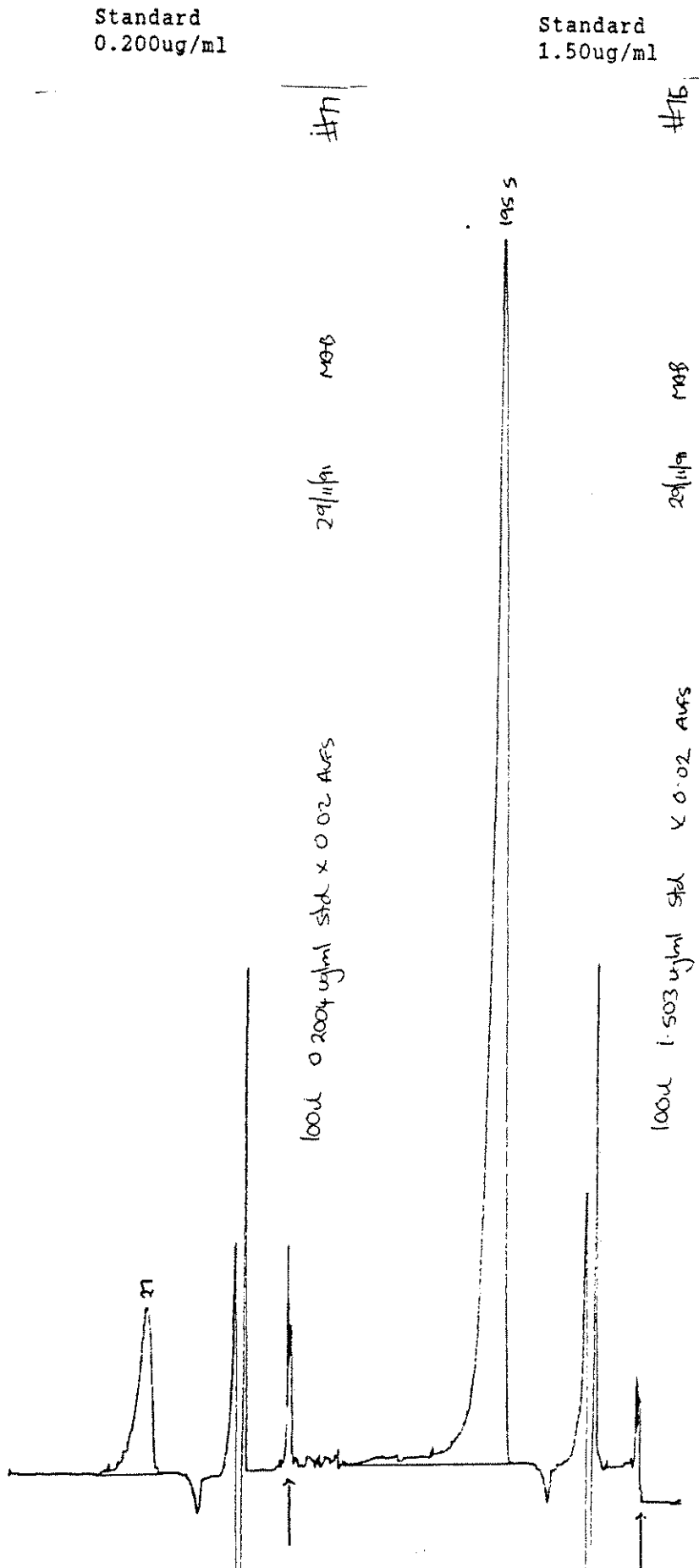
DETERMINATION OF CARBENDAZIM RESIDUES IN CUCUMBERS
Linearity Data : 29/11/91

J7709



DETERMINATION OF CARBENDAZIM RESIDUES IN CUCUMBERS
Linearity Data : 29/11/91

J7709



DETERMINATION OF CARBENDAZIM RESIDUES IN CUCUMBERS

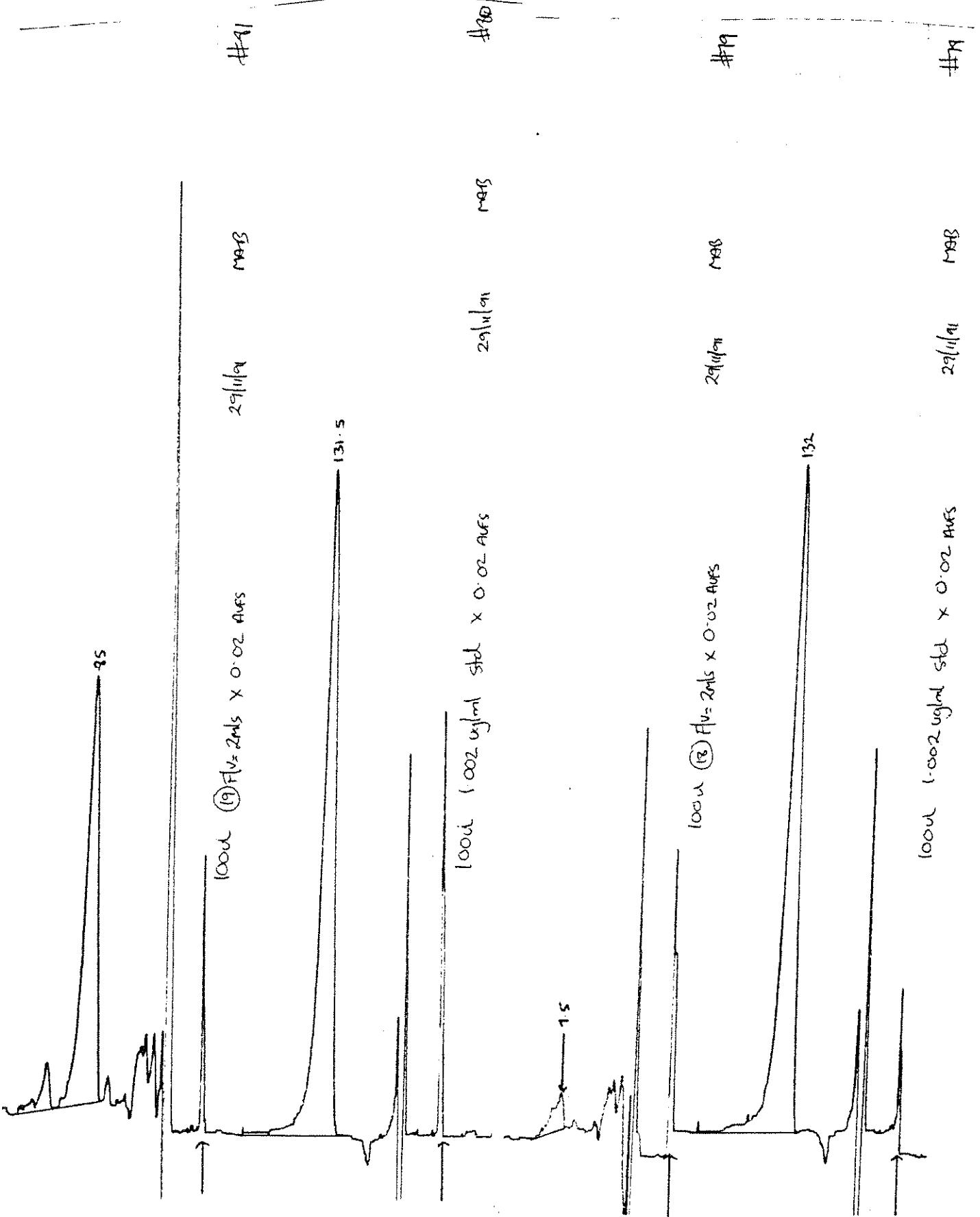
J7709

Recovery Expt.
0.251mg/kg
J7709/19

Standard
1.00ug/ml

Untreated
Sample No.1
J7709/18

Standard
1.00ug/ml



DETERMINATION OF CARBENDAZIM RESIDUES IN CUCUMBERS

J7709

Treated
Sample No.18
J7709/17

Standard
1.00ug/ml

