VG 101 Vegetable Peptone Broth

DATA FOR RAW MATERIALS, MANUFACTURING AND PERFORMANCE CHARACTERISTICS.

FOLIO 834

Introduction

Vegetable Peptone Broth VG101 has been developed an 'animal free' substitute for standard Tryptone Soya Broth (TSB) formulations for use in the pharmaceutical and biotechnology industries where 'animal free' status is important.

Product Specification.

The performance of Vegetable Peptone Broth meets or exceeds the requirements laid down by the US, British, European and Japanese pharmacopoeia as well as the standards set by the NCCLS for TSB.

The product has been designed to show improved filtration characteristics through cellulose nitrate and cellulose acetate membranes.

Composition

The formulation of the Vegetable Peptone Broth is based upon the formulation for TSB published in the United States Pharmacopoeia USP 23 NF18 1995, with certain adaptations as listed below.

TABLE 1. Formulation of Vegetable Peptone Broth VG101

	Grams per litre
Vegetable Peptone No.1	**18.0**
Dextrose	**2.5**
Dipotassium hydrogen phosphate	**2.5**
Yeast extract	**3.0**
Sodium chloride	**5.0**
TOTAL	**31.0**

TABLE 2. Physical and chemical characteristics

PHYSICAL PROPERTIES	
Colour of powder	**Pale brown**
Clarity	**Clear**
pH	**7.2+/- 0.2**
Appearance of powder	**Fine free flowing**
Moisture Content	**<7%**
Ash	**15-18%**
Shelf life	**5 years**

Filtration Characteristics

Vegetable Peptone Broth VG101 exhibits improved filtration characteristics when compared with standard Oxoid TSB (CM 129). The following graphs show comparative filtration times and rates through both cellulose acetate and cellulose nitrate membranes.

50 ml of each medium was passed through standard 47 mm cellulose acetate and cellulose nitrate filters under vacuum and the time taken to complete passage through the filter measured.

The Vegetable Peptone Broth VG101 was compared with distilled water as a reference, Oxoid TSB (USP)' CM 876 and Oxoid Standard TSB (CM 129).

Fig 1. Vegetable Peptone Broth VG101 through Cellulose Nitrate

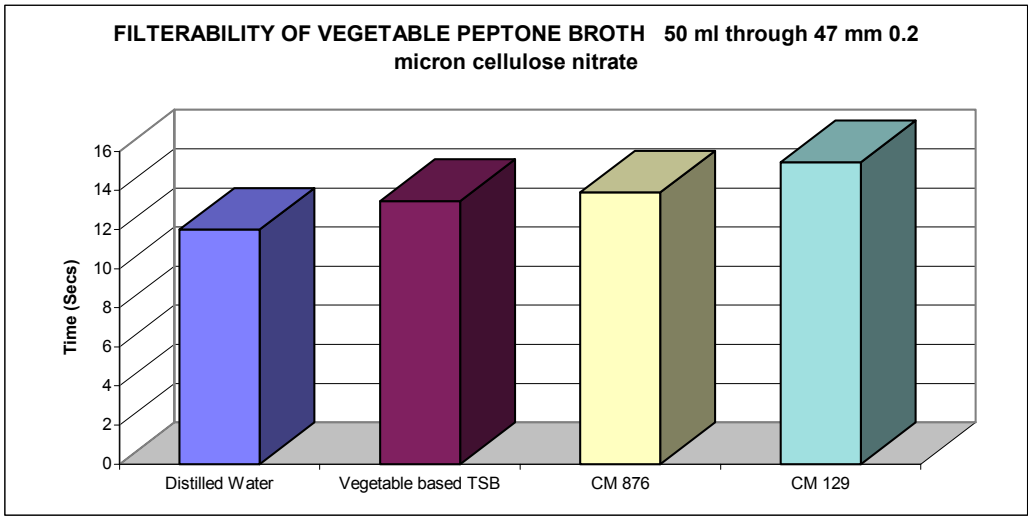
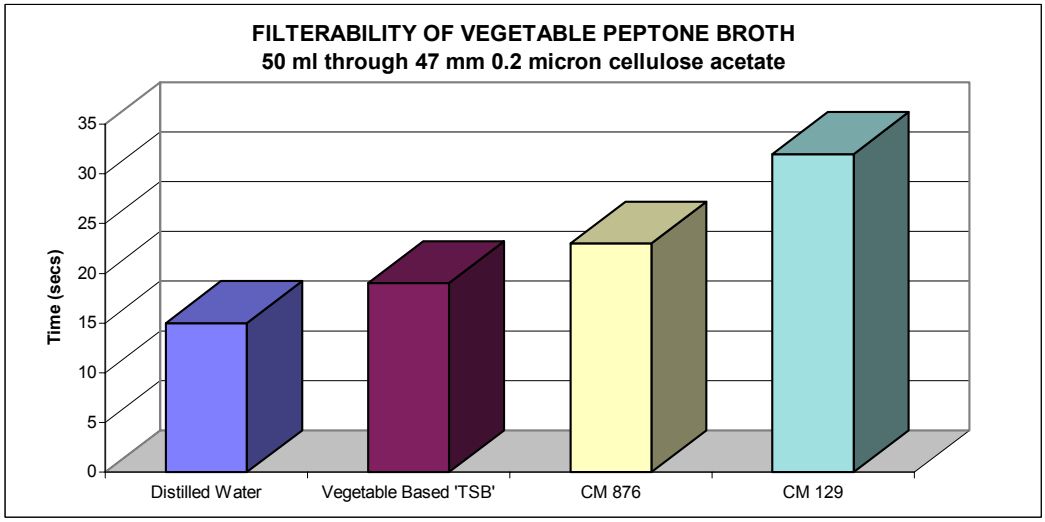


Fig 2. Vegetable Peptone Broth VG101 through Cellulose Acetate



Microbiological characteristics

The microbiological performance has been tested with a wide range of organisms. The range includes all organisms stated in the US, British, European and Japanese pharmacopoeia as well as the standards set by the NCCLS. The product has also been tested using a number of organisms recommended by the UK Medicines Control Agency.

The test protocols used for testing are those used for testing standard TSB and involve the use of low inoculum levels (< 100 colony forming units. [cfu]) of healthy cells.

In addition to the standard healthy cell recovery testing, the vegetable product has been subjected to testing for the recovery of stressed cells. Stressed cell recovery has been carried out with cells stressed using heat, dehydration and disinfectant.

The full list of organisms used, with details of international standards, is illustrated in table 3.

Methods

Microbiological testing of Vegetable Peptone Broth VG101 has been undertaken according to the guidelines set out in major international pharmacopoeia.

Testing specifications usually define satisfactory performance of the medium being tested as the observance of growth within a defined time. In order to quantify the observation, the Optical Density (OD) of each culture was observed using a robotic analyzer. (Labsystems Bioscreen C. Labsystems, Finland).

31 grams of Vegetable Peptone Broth VG101 was added to 1 litre of distilled water and mixed until dissolved. The broth was aliquoted into 10 ml volumes and sterilized by autoclaving at 121 ^{o}C for 15 minutes.

A culture of each organism in exponential phase of growth was diluted to give an inoculum level of between 10-100 cfu which was then used to inoculate 10 ml volumes in duplicate. Three samples of 400 μl were removed from the original 10 mls broth and placed into the wells of a Bioscreen plate.

The Bioscreen was used to monitor the growth by Optical Density for up to 96 Hours at temperatures designated in the relevant pharmacopoeia, with OD readings every 30 minutes.

Results

All the organisms in Tables 3 and 4 have been tested in Vegetable Peptone Broth VG101, and the growth of all organisms is satisfactory. The growth curves on the following pages illustrate a range of selected organisms.

TABLE 3. Pharmacopoeia Summary

British Pharmacopoeia Volume 2 1993		
Staphylococcus aureus	ATCC	6538p
Staphylococcus aureus	ATCC	6538
Clostridium sporogenes	ATCC	19404
Clostridium Perfringens	ATCC	13124
Candida albicans	ATCC	10231
Bacillus subtilis	ATCC	6633
Japanese Pharmacopoeia 12th ed Supplement II		
Staphylococcus aureus	ATCC	6538
Staphylococcus aureus	ATCC	6538p
Pseudomonas aeruginosa	ATCC	9027
Micrococcus luteus	ATCC	9341
Escherichia coli	ATCC	8739
Bacillus subtilis	ATCC	6633
Candida albicans	ATCC	10231
European Pharmacopoeia 3rd Ed 1998		
Candida albicans	ATCC	10231
Aspergillus niger	ATCC	16404
USP 23 NF 18 1995		
Micrococcus luteus	ATCC	9341
Candida albicans	ATCC	10231
Bacillus subtilis	ATCC	6633

TABLE 4. Additional strains and other regulatory bodies

Additional Strains		
Enterobacter cloacae	ATCC	23355
Propionibacterium acnes	ATCC	6919
Staphylococcus epidermidis	ATCC	14990
Streptococcus pyogenes	ATCC	19615
Bacillus stearothermophilus	NCTC	12976
Burkolderia cepacia	ATCC	25416
Enterococcus faecalis	ATCC	19433
Streptococcus pneumoniae	ATCC	6303
Pseudomonas aeruginosa	ATCC	27853
Candida albicans	ATCC	2091
NCCLS M22-A2		
Streptococcus pneumoniae	ATCC	6305
Staphylococcus aureus	ATCC	25923
Escherichia coli	ATCC	25922

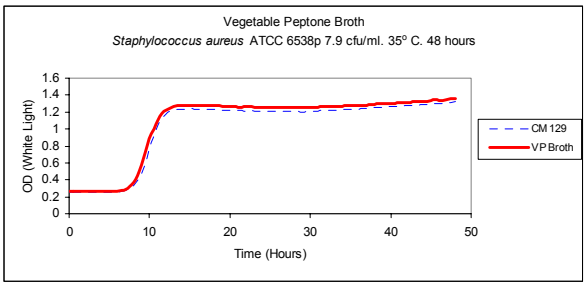
HEALTHY CELLS

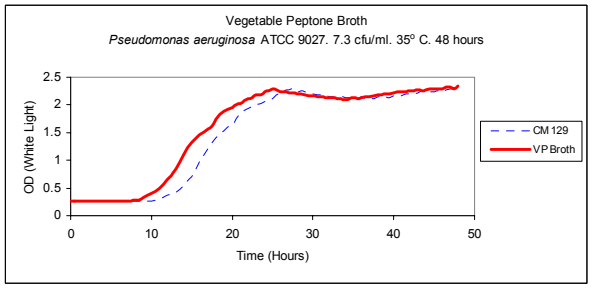
Cultures of healthy cells in exponential phase of growth were diluted and 10 ml broths inoculated with between 10 and 100 colony-forming units (cfu). Three samples of 400 μl were removed from the original 10 ml broth and placed into the wells of a Bioscreen plate.

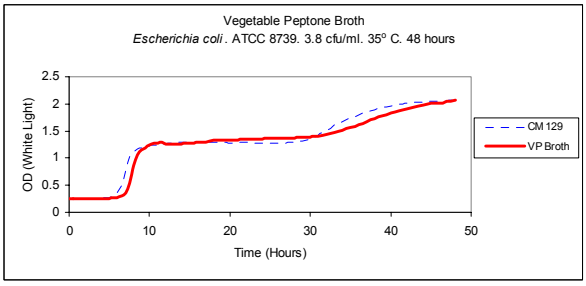
The Bioscreen was used to monitor the growth by Optical Density for up to 96 Hours at temperatures designated in the relevant pharmacopoeia, with OD readings every 30 minutes.

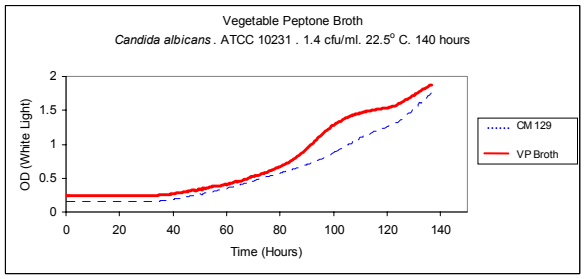
Vegetable Peptone Broth VG 101 was compared with Oxoid standard Tryptone Soya Broth (CM 129).

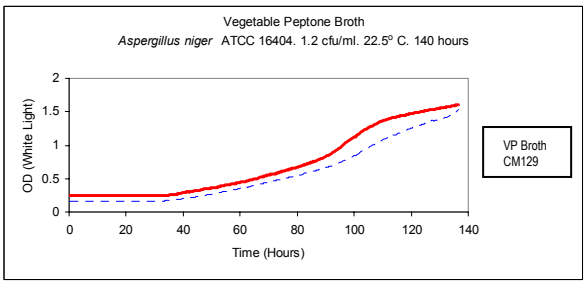
HEALTHY CELLS

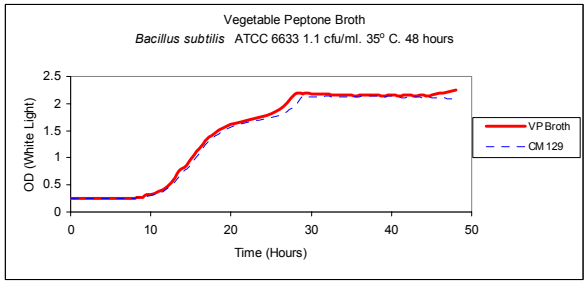


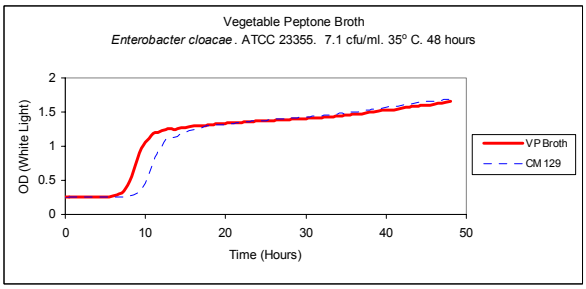


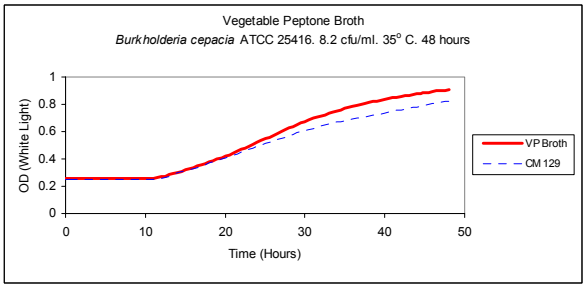


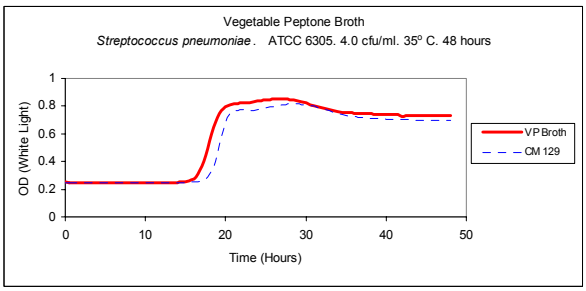


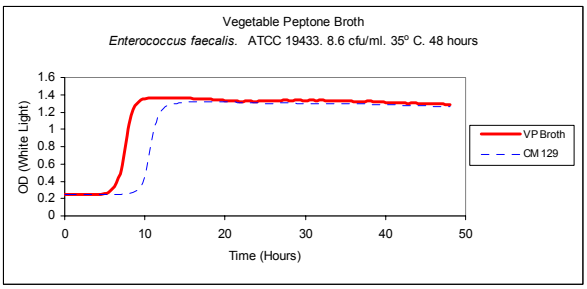


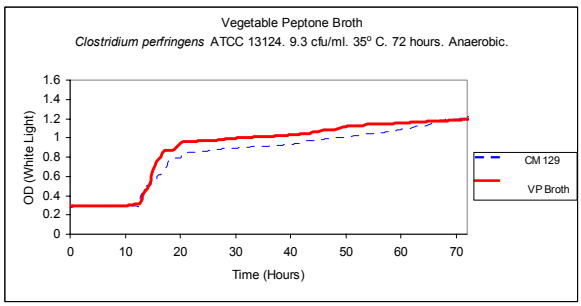


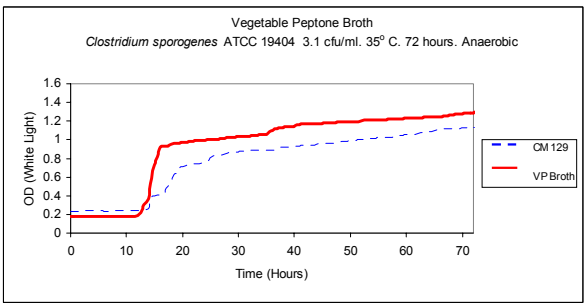












HEAT STRESSED CELLS

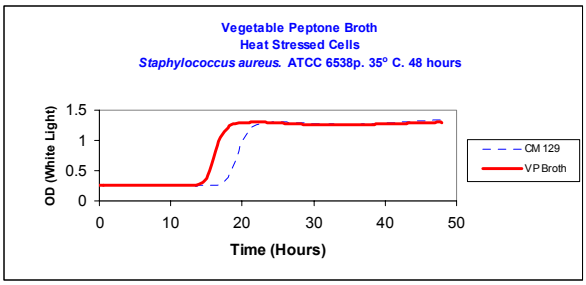
Cultures of healthy cells in exponential phase of growth were subjected to heat stress and dilution before inoculation. The degree of stress varied depending upon the organism.

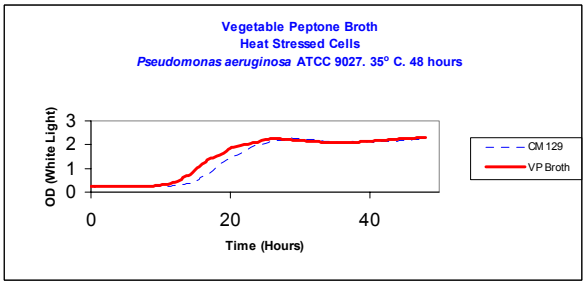
The stressed culture was used to inoculate 10 ml volumes of each broth. Three samples of 400 µl were removed from the original 10 ml broth and placed into the wells of a Bioscreen plate.

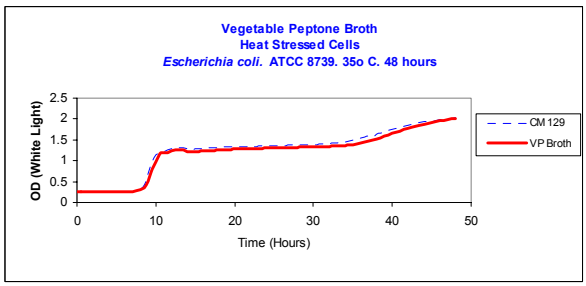
The Bioscreen was used to monitor the growth by Optical Density for up to 96 Hours at temperatures designated in the relevant pharmacopoeia, with OD readings every 30 minutes.

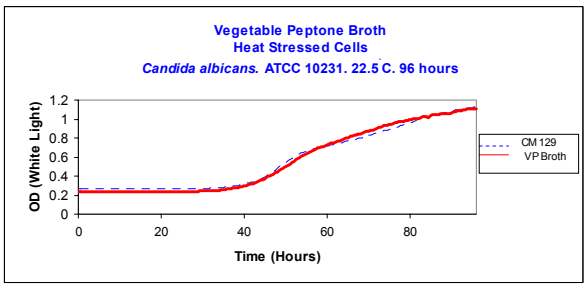
Vegetable Peptone Broth VG101 was compared with Oxoid standard Tryptone Soya Broth (CM 129).

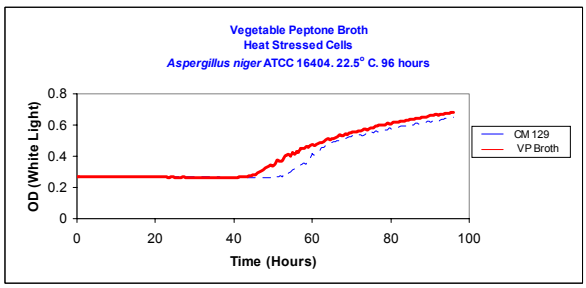
HEAT STRESSED ORGANISMS

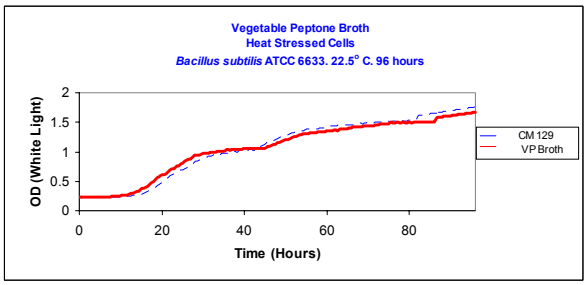


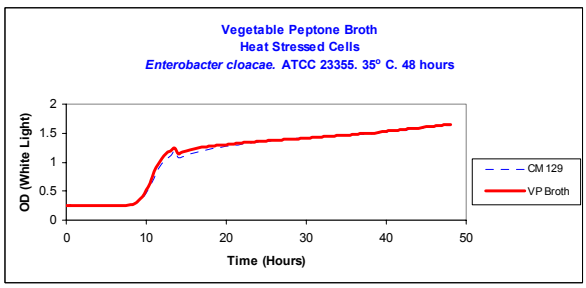


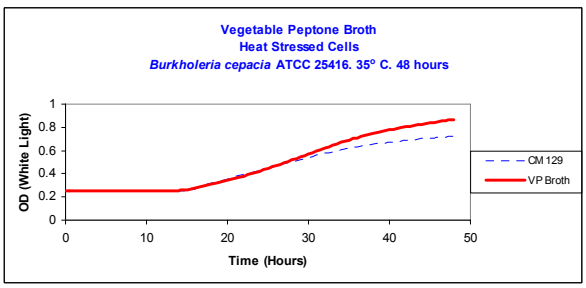


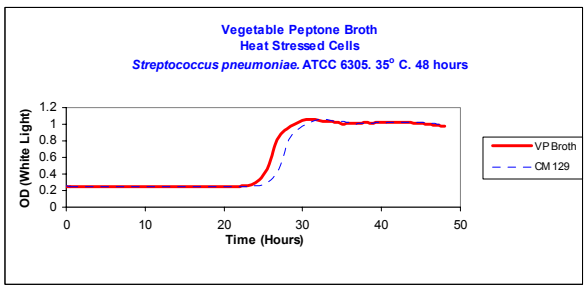


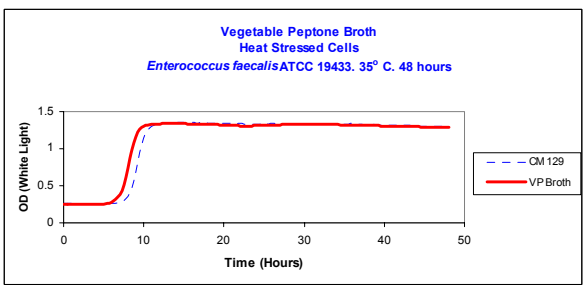












DEHYDRATION STRESS

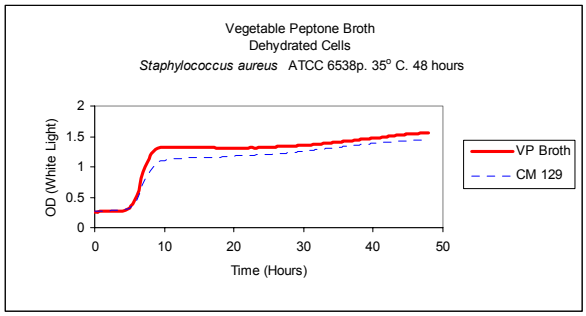
Cells in exponential phase of growth were absorbed onto sterile swabs and subjected to dry air at room temperature for 48 hours before inoculation.

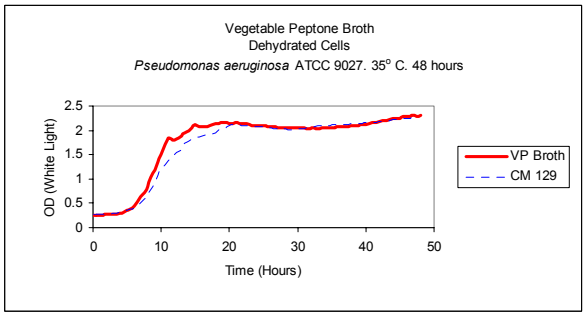
After the drying period the swabs were washed in isotonic saline and the suspension used as to inoculate 10 ml volumes of broth. Three samples of 400 µl were removed from the original 10 ml broth and placed into the wells of a Bioscreen plate.

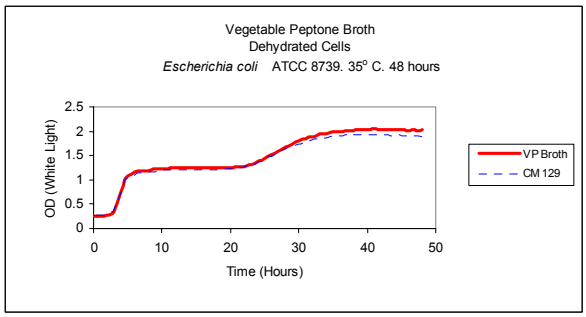
The Bioscreen was used to monitor the growth by Optical Density for up to 96 Hours at temperatures designated in the relevant pharmacopoeia, with OD readings every 30 minutes.

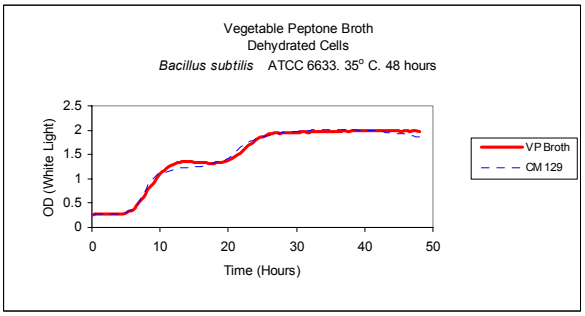
Vegetable Peptone Broth VG101 was compared with Oxoid standard Tryptone Soya Broth (CM 129).

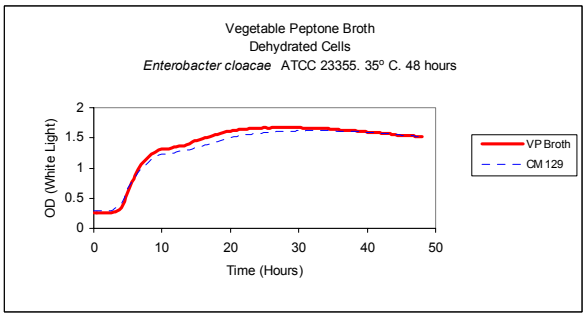
DEHYDRATION STRESS

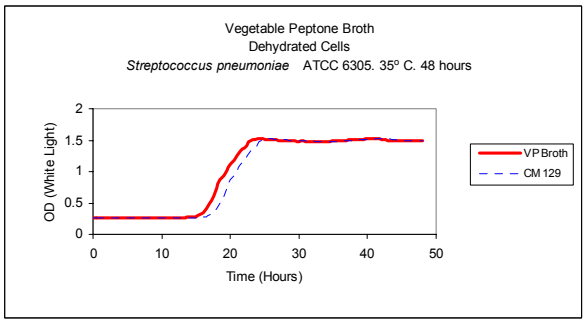


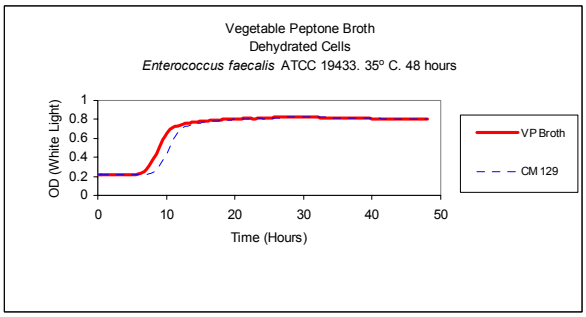


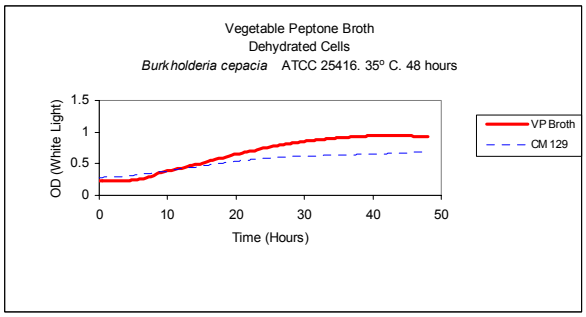


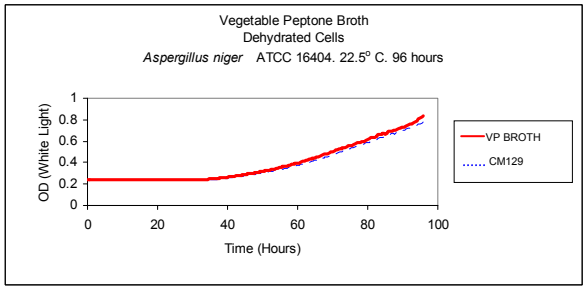


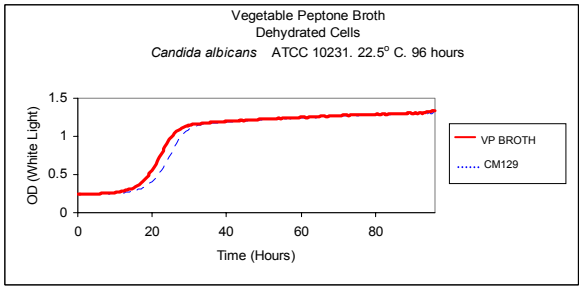












IRRADIATED MEDIA

Vegetable Peptone Broth VG101 was prepared according to the stated formulation, aliquoted into 10 ml volumes and sterilized at 121 ^{o}C for minutes. The bottles were γ irradiated at 25 kGy (received dose).

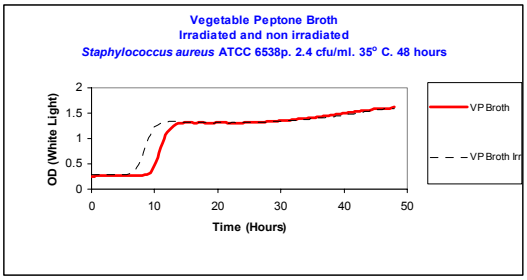
Cultures of healthy cells in exponential phase of growth were diluted and 10 ml broths inoculated with between 10 and100 colony-forming units (cfu). Three samples of 400 μl were removed from the original 10 mls broth and placed into the wells of a Bioscreen plate.

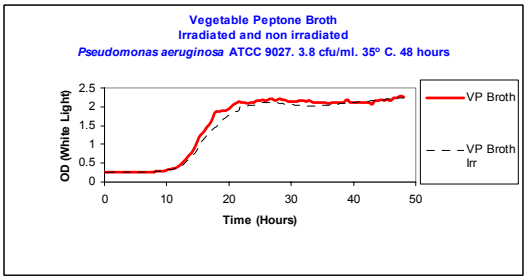
The Bioscreen was used to monitor the growth by Optical Density for up to 96 Hours at temperatures designated in the relevant pharmacopoeia, with OD readings every 30 minutes.

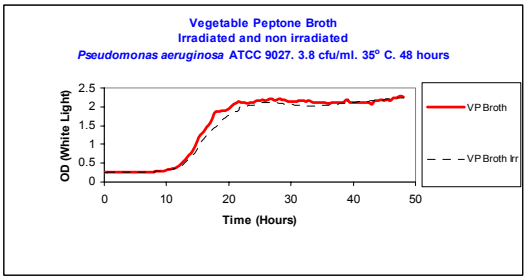
Irradiation of any culture medium results in the production of free radicals that catalyse Maillard reactions. These reactions result in the medium becoming darker owing to the production of Maillard compounds and a corresponding reduction in available protein and carbohydrate. Consequently, irradiated media tend not to perform as well as the non-irradiated version of the medium.

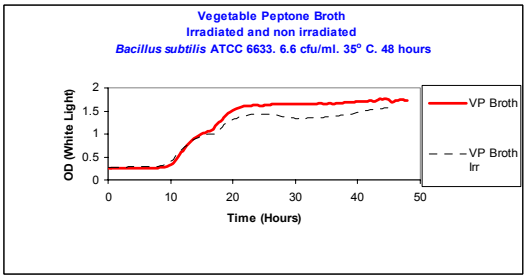
Vegetable Peptone Broth VG101 performs very well when irradiated and meets all the requirements of the pharmacopoeia and other regulatory bodies.

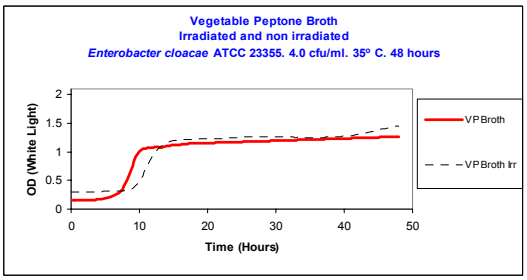
Irradiated Vegetable Peptone Broth VG101 was compared with non irradiated Vegetable Peptone Broth VG101.

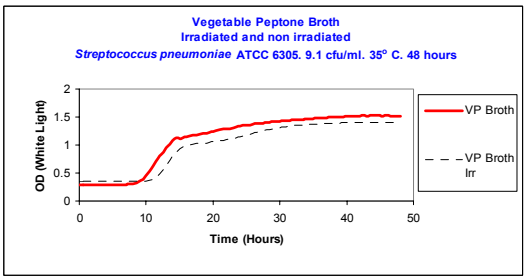

Vegetable Peptone Broth
Irradiated and non irradiated
Staphylococcus aureus ATCC 6538p. 2.4 cfu/ml. 35° C. 48 hours
OD (White Light)
Time (Hours)
VP Broth
VP Broth Irr

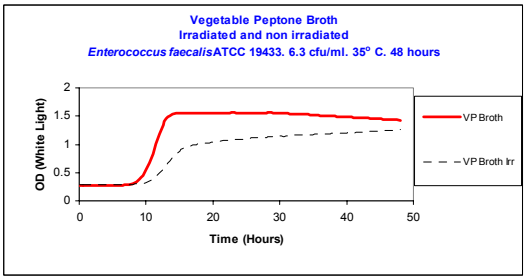

Vegetable Peptone Broth
Irradiated and non irradiated
Pseudomonas aeruginosa ATCC 9027. 3.8 cfu/ml. 35° C. 48 hours
OD (White Light)
Time (Hours)
VP Broth
VP Broth Irr

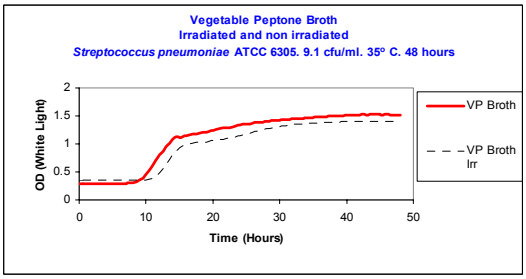

Vegetable Peptone Broth
Irradiated and non irradiated
Pseudomonas aeruginosa ATCC 9027. 3.8 cfu/ml. 35° C. 48 hours
OD (White Light)
Time (Hours)
VP Broth
VP Broth Irr

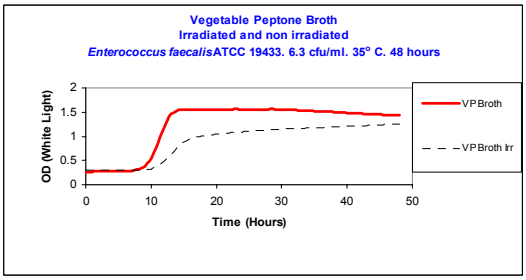

Vegetable Peptone Broth
Irradiated and non irradiated
Bacillus subtilis ATCC 6633. 6.6 cfu/ml. 35° C. 48 hours
OD (White Light)
Time (Hours)
VP Broth
VP Broth Irr

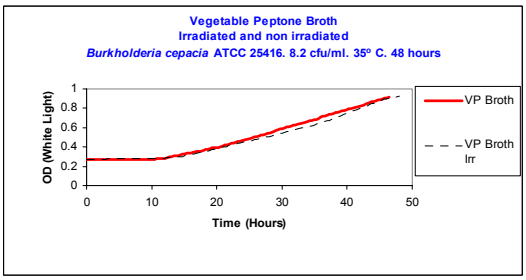

Vegetable Peptone Broth
Irradiated and non irradiated
Enterobacter cloacae ATCC 23355. 4.0 cfu/ml. 35° C. 48 hours
OD (White Light)
Time (Hours)
VP Broth
VP Broth Irr

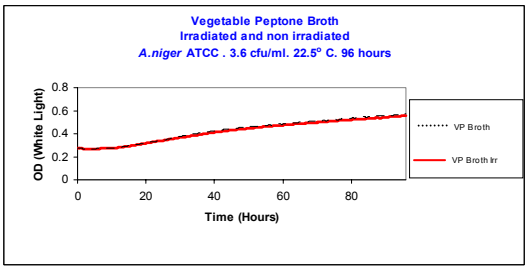

Vegetable Peptone Broth
Irradiated and non irradiated
Streptococcus pneumoniae ATCC 6305. 9.1 cfu/ml. 35° C. 48 hours
OD (White Light)
Time (Hours)
VP Broth
VP Broth Irr

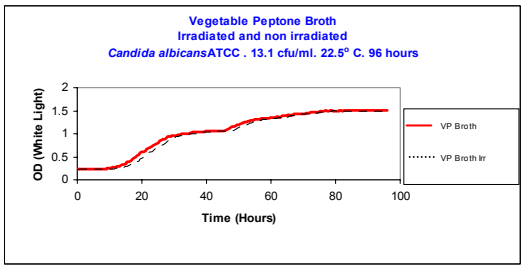

Vegetable Peptone Broth
Irradiated and non irradiated
Enterococcus faecalis ATCC 19433. 6.3 cfu/ml. 35° C. 48 hours
OD (White Light)
Time (Hours)
VP Broth
VP Broth Irr


Vegetable Peptone Broth
Irradiated and non irradiated
Streptococcus pneumoniae ATCC 6305. 9.1 cfu/ml. 35° C. 48 hours
OD (White Light)
Time (Hours)
VP Broth
VP Broth Irr


Vegetable Peptone Broth
Irradiated and non irradiated
Enterococcus faecalis ATCC 19433. 6.3 cfu/ml. 35° C. 48 hours
OD (White Light)
Time (Hours)
VP Broth
VP Broth Irr


Vegetable Peptone Broth
Irradiated and non irradiated
Burkholderia cepacia ATCC 25416. 8.2 cfu/ml. 35° C. 48 hours
OD (White Light)
Time (Hours)
VP Broth
VP Broth Irr


Vegetable Peptone Broth
Irradiated and non irradiated
A.niger ATCC . 3.6 cfu/ml. 22.5° C. 96 hours
OD (White Light)
Time (Hours)
VP Broth
VP Broth Irr


Vegetable Peptone Broth
Irradiated and non irradiated
Candida albicans ATCC . 13.1 cfu/ml. 22.5° C. 96 hours
OD (White Light)
Time (Hours)
VP Broth
VP Broth Irr

Cold Filterable Vegetable Peptone Broth

CODE: VG0104

A GAMMA-IRRADIATED POWDER SUITABLE FOR MICROBIOLOGICAL MEDIA FILL TRIALS (MFT) IN THE PHARMACEUTICAL INDUSTRY.

NUTRITIOUS

Cold Filterable Vegetable Peptone Broth (Cold Filterable VPB) is a highly nutritious, general purpose medium which can support the growth of a wide range of bacteria, yeasts and moulds when incubated under appropriate conditions.

EASY TO USE

Each component of Cold Filterable VPB has been specially screened and selected to ensure easy filtration without the need to heat. A V_{cap} value for each batch has been determined with three different filter types.

CONVENIENT

Packs of Cold Filterable VPB have been given a sterilising dose of gamma-irradiation (minimum 25 KGy) validated to be lethal for all yeasts, moulds and bacteria including bacterial spores and myco-plasmas.

ANIMAL-FREE

This medium is suitable for use as an alternative to Tryptone Soya Broth where a product free of all animal-derived material is required.

VEGGIETONES

Cold Filterable Vegetable Peptone Broth

CODE: VG0104

INTENDED USE

A medium completely free from all animal-derived materials, particularly suitable for use in Media Fill Trials (MFT) for the pharmaceutical industry. Dehydrated Cold Filterable VPB can be substituted for the powdered components that go into making sterile aqueous drugs or added as a sterile liquid downstream of processing a placebo of sterile solid dosage form. After carrying out MFT the medium is incubated under appropriate conditions for the recovery of any bacteria, yeasts and moulds.

PRINCIPLES

Oxoid pre-screen and select the raw materials that go into Cold Filterable VPB so that every batch of product will have a high V_{cap} value. V_{cap} is the theoretical maximum volumetric throughput for the filter under test. With this information the maximum filterable volume of VPB may be calculated before starting a MFT[1]. At Oxoid a filter management system is used with a test filter to determine V_{cap} values for each batch of Cold Filterable VPB. The final filterable volume of Cold Filterable VPB will depend on the membrane type, pore size and area of the process filter used. See typical example below.

Typical V_{cap} values for Oxoid Cold Filterable VPB:

FILTER MEMBRANE	V_{cap} (ML) 47 MM DISC (AREA 14 CM^2)	V_{cap} (LITRES/M^2)
Polyvinylidene fluoride (PVDF)	913	652
Polyethersulfone (PES)	1,274	950
Nylon (NR)	1,817	1,298

V_{cap} is the extrapolation to a "flow = zero" point; the time to this point may be very long. Therefore V_{cap} is good for comparative analysis but is not practical for MFT where time for a process is limited. A more useful value is V_{90} which is calculated as 68% of V_{cap} and is the point at which flow has decayed to 10% of the initial rate. Contact your filter manufacturer for guidance. **N.B.** Cold Filterable VPB should not be used to validate the suitability of the chosen filtration system for its ability in providing a sterile drug product. The components of Cold Filterable VPB will be quite different to those found in an aqueous drug formulation and validation for this purpose should be carried out on the drug preparation itself.

SUMMARY

Cold Filterable VPB is a highly nutritious, general purpose medium which can support the growth of a wide range of bacteria, yeasts and fungi when incubated under the appropriate conditions. The peptone in this medium is derived from the kernel of the split yellow pea which is digested using fungal enzymes.

Each component of this medium has been specially screened and selected to give a highly filterable solution. The performance of the medium is tested according to the specifications for growth of control micro-organisms in Tryptone Soya Broth laid down in the European Pharmacopoeia 5th Edition 2005[2], the British Pharmacopoeia 2004[3], the United States Pharmacopoeia USP 28 2005[4] and the Japanese Pharmacopoeia JP 14 2001[5].

Packs of Cold Filterable VPB have been given a sterilising dose of gamma-irradiation (minimum 25 KGy) validated as a lethal dose for all yeasts, moulds and bacteria including bacterial spores and mycoplasmas.

FORMULA

	GRAMS PER LITRE
Vegetable peptone	18.0
Dextrose	2.5
Di-potassium hydrogen phosphate	2.5
Yeast extract	3.0
Sodium chloride	5.0

Final pH 7.1 ± 0.2 at 25°C

DIRECTIONS

Suspend 31 g of dehydrated powder in 1 litre of distilled water. Mix well to dissolve completely. Sterilise by autoclaving for at 121°C for 15 minutes. 1 Kg of Cold Filterable VPB dehydrated powder will make 32.2 litres of medium.

Incubation of media fills is usually carried out for 14 days[6] at both 20-25°C and 30-35°C. Where possible visual inspection of the units should be carried out on a daily or every second day basis. Micro-organisms from any contaminated units should be sub-cultured, purified and identified to species level. Refer to the appropriate regulatory body for full guidelines[2,3,4,5].

APPEARANCE

Dehydrated Medium: straw coloured, free-flowing powder.
Prepared Medium: clear, straw coloured liquid.

PRECAUTIONS, STORAGE & STABILITY

Cold Filterable VPB is for Laboratory Use Only. Do not use beyond the stated expiry date, or if the product shows any sign of deterioration. Cold Filterable VPB must be stored tightly capped in the original container at 10-30°C. Material Safety Data Sheet (MSDS) and Batch Quality Control Certificates are available from the Oxoid website: www.oxoid.com

QUALITY CONTROL TESTING

Organism	Culti-loop® order code	Typical appearance
Staphylococcus aureus **ATCC®6538**	**C7016L**	Turbid growth
Pseudomonas aeruginosa **ATCC®9027**	**C5210L**	Turbid growth
Bacillus subtilis **ATCC®6633**	**C1221L**	Flocculent/surface growth
Aspergillus niger **ATCC®16404**	**C1100L**	White mycelia, black spores or no spores
Candida albicans **ATCC®10231**	**C1503L**	Flocculent/surface growth
Un-inoculated medium	N/A	No growth

REFERENCES: **1**. Badmington F., Wilkins R., Payne M. and Nonig E.S. (1995) Vmax Testing for Practical Microfiltration Train Scale-Up in Biopharmaceutical Processing, *Pharmaceutical Technology*, September, p64-76. **2**. European Pharmacopoeia 5th Edition 2005. **3**. British Pharmacopoeia 2004. **4**. United States Pharmacopoeia USP 28 2005. **5**. Japanese Pharmacopoeia JP 14 2001. **6**. Halls N., (2002) Microbiological Media Fills Explained. Sue Horwood Publishing Ltd, UK.

DEDICATED TO MICROBIOLOGY

www.oxoid.com

Oxoid Ltd, Wade Road, Basingstoke, Hants, RG24 8PW, UK. Tel: +44 (0) 1256 841144 Fax: +44 (0) 1256 463388 Email: oxoid@oxoid.com

Folio No. 1050/01/2005

Vegetable Peptone Phosphate Broth

VG200

DATA FOR RAW MATERIALS, MANUFACTURING AND PERFORMANCE CHARACTERISTICS

Introduction

Vegetable Peptone Phosphate Broth (VG200) has been developed as an 'animal free' substitute for Tryptose Phosphate Broth for use in the pharmaceutical and biotechnology industries where 'animal free' status is important.

Product Specification

Vegetable Peptone Phosphate broth has been designed to be comparable to Tryptose Phosphate Broth, a buffered dextrose broth for the growth of fastidious microorganisms.

Tryptose Phosphate Broth is also used for tissue culture. Vegetable Peptone Phosphate Broth has been tested using Baby Hamster Kidney 21 (BHK 21) cells and is suitable for use in place of standard Tryptose Phosphate Broth.

Vegetable Peptone Phosphate Broth is made from raw materials that are free from any animal derived products and are GMO free.

Composition

TABLE 1. Formulation of Vegetable Peptone Broth

	Grams per litre
Vegetable Peptone No.1	**15**
Dextrose	**2**
Di-basic sodium phosphate	**2.5**
Yeast extract	**5**
Sodium chloride	**5**
TOTAL	**29.5**

TABLE 2. Physical and chemical characteristics

PHYSICAL PROPERTIES	
Colour of powder	**Pale brown**
Clarity	**Clear**
pH	**7.3+/- 0.2**
Appearance of powder	**Fine free flowing**
Moisture Content	**<7%**
Ash	**15-18%**
Shelf life	**5 years**

Microbiological characteristics

Methods

Microbiological testing of Vegetable Peptone Phosphate Broth is performed according to the Quality Control methods used for standard Tryptose Phosphate Broth.

Testing specifications usually define satisfactory performance of the medium being tested as visible growth within a defined time. In order to quantify the observation, the Optical Density (OD) of each culture was recorded using an automatic reader. (Labsystems Bioscreen C. Labsystems, Finland).

29.5 grams of Vegetable Peptone Phosphate Broth were added to 1 litre of distilled water and mixed until dissolved. The broth was aliquoted into 10 ml volumes and sterilized by autoclaving at 121 ^{o}C for 15 minutes.

A culture of each organism in exponential phase of growth was diluted to give an inoculum level of between 10-100 colony forming units (cfu), which was then used to inoculate 10 ml volumes in duplicate. Three samples of 400 μl were removed from the original 10 ml broth and placed into the wells of a Bioscreen plate.

The Bioscreen was used to monitor the growth by Optical Density for up to 96 hours at temperatures designated in the relevant pharmacopoeia, with OD readings every 30 minutes.

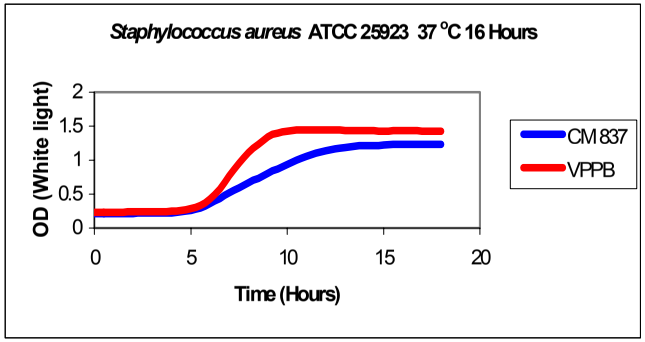
Results

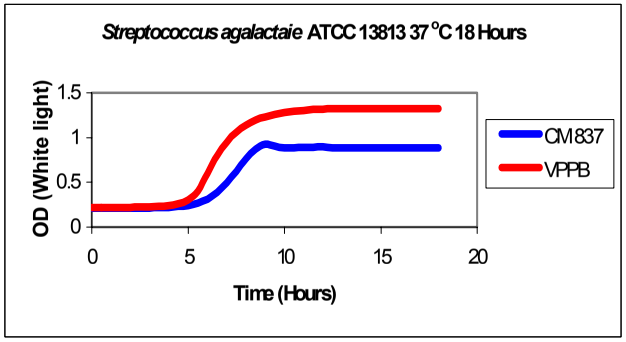
All the organisms in Table 3 were tested in Vegetable Peptone Phosphate Broth and the growth of all organisms was satisfactory. The growth curves on the following pages illustrate a range of selected organisms. Vegetable Peptone Phosphate Broth was compared with standard Tryptose Phosphate Broth (CM283) and Tryptose Phosphate Broth (BHK) – a version made specifically for the manufacture of Foot and Mouth Disease Virus (FMDV).

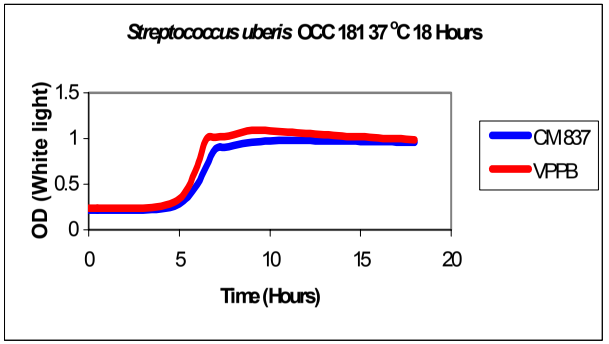
TABLE 3. Organisms used for microbiological testing

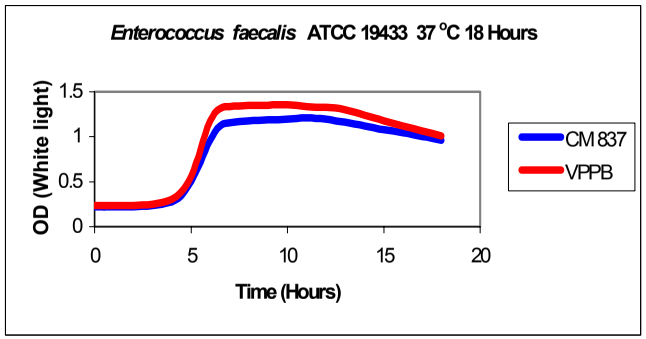
Organism	Strain reference
Streptococcus pyogenes	ATCC 19615
Staphylococcus aureus	ATCC 25923
Streptococcus pneumoniae	ATCC 6603
Streptococcus agalactiae	ATCC 138113
Enterococcus faecalis	ATCC 19433
Streptococcus uberis	Wild type strain Oxoid culture collection

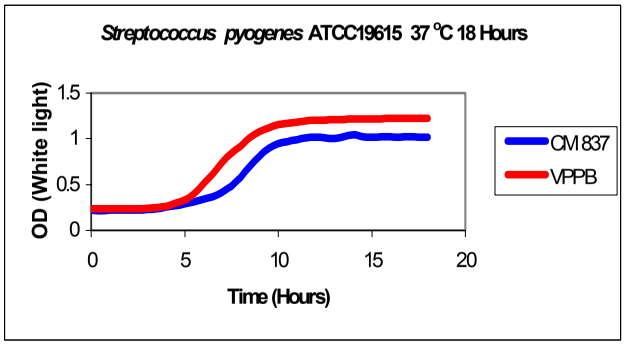
FIG 1. Growth curves for Vegetable Peptone Phosphate Broth (VG200) compared with Tryptose Phosphate Broth BHK (CM 837)











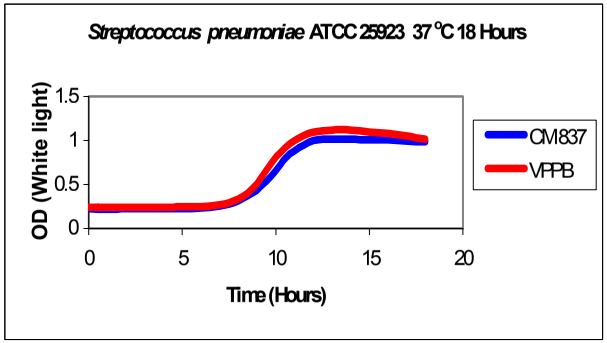
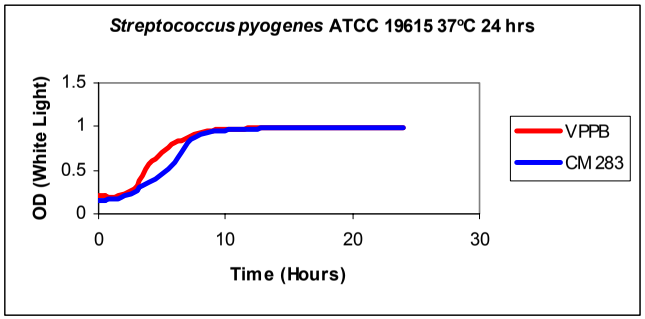
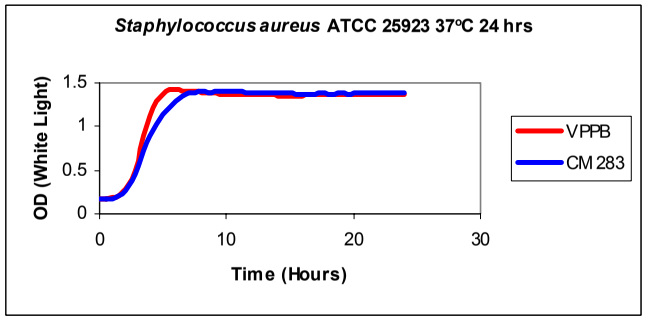
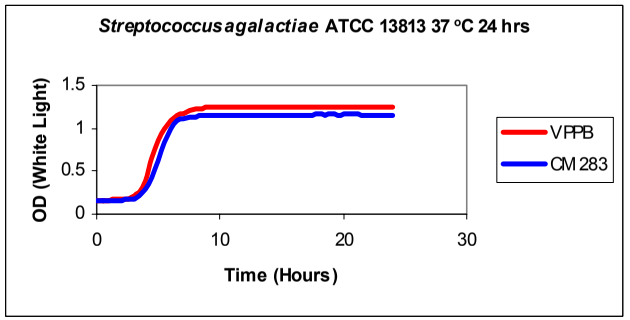
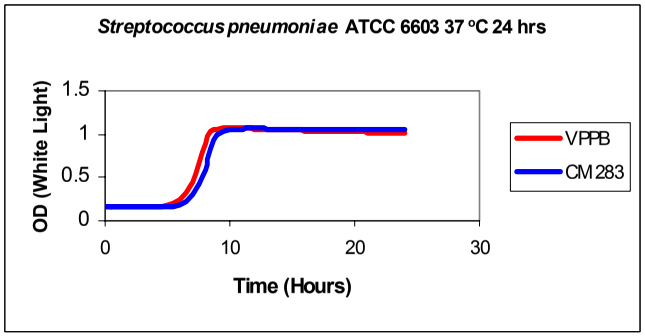


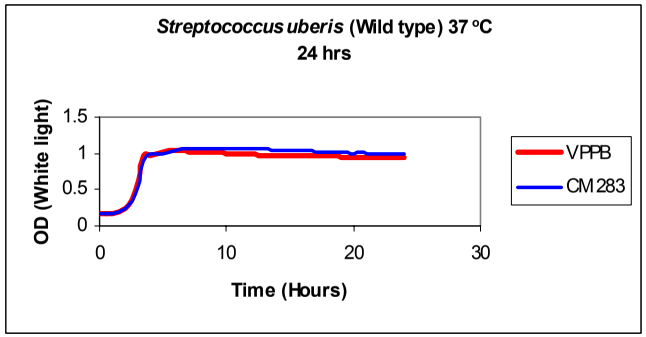
FIG 2. Growth curves for Vegetable Peptone Phosphate Broth (VG200) compared with Tryptose Phosphate Broth (CM283)

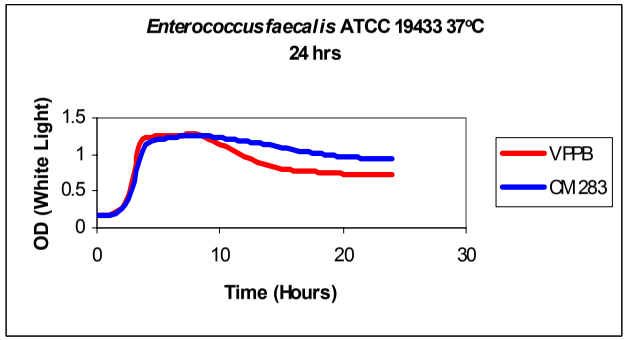












Tissue Culture Characteristics: Baby Hamster Kidney 21 (BHK21) Cells

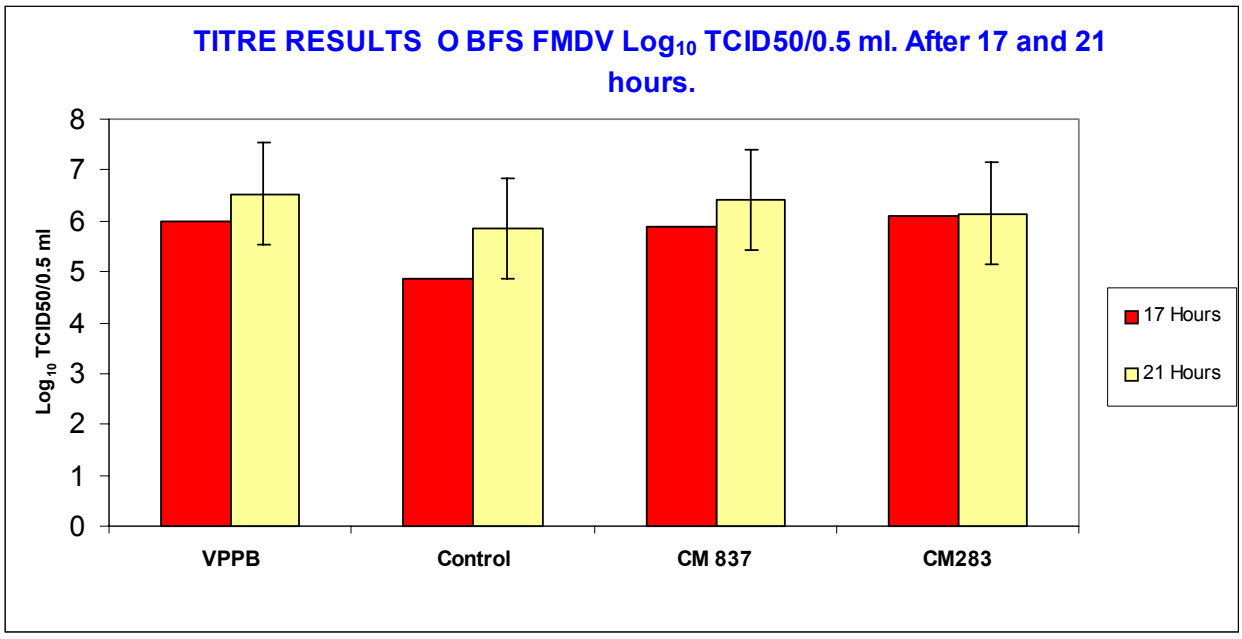
Vegetable Peptone Phosphate Broth was tested with BHK 21 cells for the yield of foot and mouth disease virus (FMDV). Vegetable Peptone Phosphate Broth was incorporated at 5% v/v into Glasgow Modified Eagles Medium supplemented with 5% adult bovine serum. The yield of FMDV after 17 and 21 hours incubation is shown in fig 3.

KEY TO GRAPH:

VPPB	Vegetable Peptone Phosphate broth
Control	Glasgow Modified Eagles Medium supplemented with 5% adult bovine serum only
CM837	Tryptose Phosphate Broth
CM283	Tryptose Phosphate Broth

Error bars indicate the limits of uncertainty of measurement inherent in the assay.

Fig. 3



Conclusions.

The microbiological results show equivalence in performance between the Vegetable Peptone Phosphate Broth (VG200), Tryptose Phosphate Broth BHK (CM 837) and Tryptose Phosphate Broth (CM283).

The yield of Foot and Mouth Virus, when used in tissue culture media, demonstrates equivalence of Vegetable Peptone Phosphate Broth (VG200) with Oxoid Tryptose Phosphate Broth (CM283 and CM837).

FOLIO 831

Veggietone Soya Peptone
Code: VG300

A GMO-free alternative to traditional Soya peptones. A highly nutritious general purpose peptone for the growth of bacteria and fungi.

GUARANTEED GM FREE

- **This product has been certified as free of genetically modified material.**

GUARANTEED MEAT-FREE FORMULATION

- **Peptone & Enzymes**

No raw materials of animal origin have been used in this product. Soya flour has been used as a protein source for the peptone and fungal enzymes have been used to make the peptone.

DESIGNED FOR FERMENTATION

- **Excellent growth of microorganisms**

Formulated to give a good nutritional base to allow luxuriant growth of fastidious organisms.

- **Quick and easy filtration**

Designed to give a clear straw coloured broth which has good filtration rates on both cellulose acetate and cellulose nitrate filters.

Since the emergence of genetically modified crops in the 1990s and subsequent concerns over the use of GMOs in the Pharmaceutical industry there has been a growing need for products which can be certified to be GMO free.

Oxoid have responded to this need by offering peptones which are made from GMO free raw materials under the Veggietone name. These products are also manufactured without using any materials of animal origin, thus reducing concerns over BSE and prion transmission.

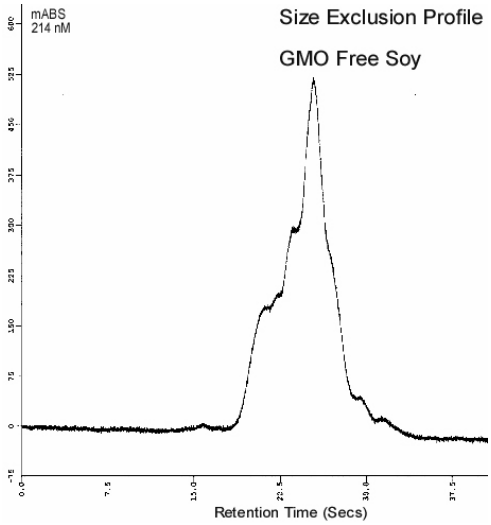
Oxoid can now offer a choice of Veggietone Soya Peptone (VG300) or Vegetable Peptone No. 1 (VG100) as GMO and meat-free alternatives to traditional peptones.

Veggietone Soya Peptone
Code: VG300

• INTENDED USE

Veggietone Soya Peptone (VG300) is an enzymatic digest of soya flour. The peptone has been designed as a general purpose nutrient for the growth of a wide range of organisms.

• TYPICAL MOLECULAR WEIGHT PROFILE



Veggietone Soya Peptone (VG300) contains a wide distribution of peptides including low molecular weight di- and tri-peptides as well as individual amino acids.

• TYPICAL AMINO ACID ANALYSIS

	TOTAL AMINO ACIDS n.Mol/mg
ASP	500
THR	180
SER	310
GLU	800
PRO	250
GLY	310
ALA	250
VAL	200
MET	46
ILE	180
LEU	310
TYR	85
PHE	130
HIS	120
LYS	220
ARG	140

• TYPICAL CHEMICAL ANALYSIS

METALS	
Ca	320 ppm
Mg	1755 ppm
Cu	3 ppm
Fe	80 ppm
Zn	18.5 ppm
Nitrogen	
Formal Nitrogen	9.30%
Total Nitrogen	8.75%
Ash	13.10%

• TYPICAL ANION ANALYSIS

Anions	
Bromate	<0.01%
Chloride	1.1% w/w
Phosphate	0.2% w/w
Sulphate	0.4% w/w

• TYPICAL CARBOHYDRATE ANALYSIS

Carbohydrate	
Glucose	0.14%
Fructose	0.20%
Sucrose	5.61%
Maltose	0.14%
Mannose	<0.05%
Galactose	<0.05%

• STORAGE AND STABILITY

Veggietone Soya Peptone (VG300) is a straw coloured, free flowing powder.

Veggietone Soya Peptone (VG300) should be stored tightly capped in the original container at 10-30°C. When stored as directed, the medium will remain stable until the stated expiry date.

Do not use Veggietone Soya Peptone (VG300) beyond expiry date or if the product shows any sign of deterioration.

• QUALITY CONTROL TESTING

For quality control of the medium the organisms named below can be used:

		Culti-Loop®
Staph. aureus	ATCC®9144	C7001L
Staph. aureus	ATCC®25923	C7010L

MycoPeptone
Code: VG0500

MycoPeptone is a nutritious peptone rich in B vitamins, with a high carbohydrate content. It is an animal-free alternative to traditional peptones.

GUARANTEED MEAT-FREE

- **Peptones & Enzymes**

No raw materials of animal origin are used in this product. A fungal protein isolate is the raw material base for the peptone and fungal enzymes are used in the manufacture.

GUARANTEED GM FREE

- **All our raw materials used to manufacture MycoPeptone are certified as free from genetically modified material.**

DESIGNED FOR FERMENTATION

- **Excellent growth of micro-organisms**

Formulated to give a nutritious base to allow luxuriant growth of fastidious organisms. This peptone has been shown to give particularly good growth of *Streptococcus* species.

Since the emergence of Bovine Spongiform Encephalopathy (BSE) in the 1980s and subsequent worries about transmissible spongiform encephalopathies (TSEs) in other species, there has been a growing concern over the use of meat and animal derived products in microbiology.

Despite a strict policy of sourcing from countries where BSE is not known, and tight regulation and certification of all raw materials, Oxoid have recognised the need for a range of meat-free products for use within the pharmaceutical industry.

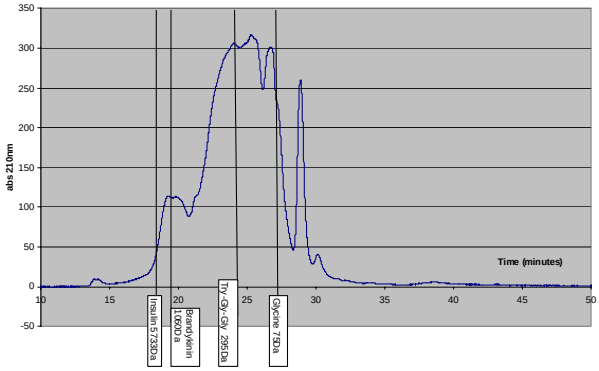
This has led to the development of the Veggietone range – which offers meat-free alternatives to traditional peptones.

MycoPeptone Code: VG0500

• INTENDED USE

MycoPeptone (VG0500) is an enzymatic digest of a fungal protein isolate. It has been designed as a general purpose peptone for the growth of a wide range of organisms. This peptone is rich in B vitamins and carbohydrate.

• TYPICAL MOLECULAR WEIGHT PROFILE



MycoPeptone (VG0500) contains a wide distribution of peptides including low molecular weight di and tri-peptides and as individual amino acids.

• TYPICAL AMINO ACID ANALYSIS

	Total Amino Acids	Free Amino Acids
	g/100 g	g/100 g
Aspartic acid	1.34	<0.02
Serine	0.69	0.26
Glutamic acid	4.73	2.03
Glycine	0.75	0.15
Histidine	0.26	<0.02
Arginine	1.08	0.62
Threonine	0.6	<0.02
Alanine	1.82	1.07
Proline	0.66	<0.02
Cystine	0.36	<0.02
Tyrosine	0.5	<0.02
Valine	0.54	0.15
Methionine	0.24	<0.02
Lysine	0.79	0.68
Isoleucine	0.34	<0.02
Leucine	0.63	0.12
Phenyalanine	0.48	0.12

• TYPICAL IONIC ANALYSIS

Chloride %w/w	0.2
Calcium ppm	66
Magnesium ppm	797
Copper ppm	11.9
Iron ppm	28.9

• TYPICAL PHYSICAL & CHEMICAL CHARACTERISTICS

Characteristic	Level
Total nitrogen (TN) %	6.0
Formol nitrogen (FN) %	2.0
FN % : TN %	0.3
Ash %	25.0
pH of 2% solution @ 25°C	7.2 +/- 0.2
Moisture	< 7.0%
Clarity 2% solution	Clear with no sediment

MycoPeptone (VG0500) is a dark straw coloured, free flowing powder.

• TYPICAL VITAMIN ANALYSIS

Vitamin	Concentration mg/kg
B1 (as HCl)	28.3
B2	62.0
B3	351
B6 (as pyridoxine)	7.65
B12	0.014
Pantothenic acid	150.0
Folic acid	27.0
Biotin	0.89
Niacin	13.7
Niacinamide	337
Choline chloride	421
Free Inositol	<0.05 g/100g

• STORAGE AND STABILITY

MycoPeptone (VG0500) should be stored tightly capped in the original container at 10-30°C. When stored as directed, the medium will remain stable until the stated expiry date.

Do not use MycoPeptone (VG0500) beyond the stated expiry date or if the product shows any sign of deterioration.

• QUALITY CONTROL TESTING

For quality control of the medium the organisms named below can be used:

		Culti-Loop®
Bacillus cereus	ATCC®11778	C1220L
Escherichia coli	ATCC®25922	C7050L

For individual batch Quality Control Certificates and a Material Safety Data Sheet (MSDS) please visit our website: www.oxoid.com