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Peptones for bioprocess.

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Application notes

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Inspired by knowledge

Condalow®

CHO-S cell assays

HEK-293F cell assays

Plasmid production

Condalow® Soy peptone Cell Culture: CHO-S growth and viability.

Abstract

The purpose of this assay is to demonstrate Condalow® Soy peptone is a good animal free supplement for growth and recombinant protein productivity enhancement. In this experiment we focus on cell growth and cell viability.

Introduction

Condalow® Soy Peptone is a product obtained from soy protein which through a controlled manufacturing process ensures a low endotoxin content. This product is an excellent source of peptides, vitamins, and carbohydrates. It can be used in fermentation processing, tissue culture media, vaccines, antibody production, and a wide range of BioPharma processes.

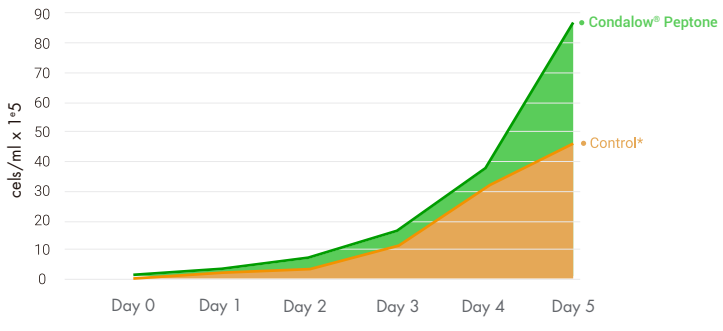
Material and methods

The peptones were prepared at 20 g/l concentration and sterilized by 0.22 µm filtration.
For this case study we used a CHO-S cell line in a serum-free, chemically defined medium.
We used a sterile Thomson 24-well plate; 10.4 ml square well, round bottom, individually wrapped.

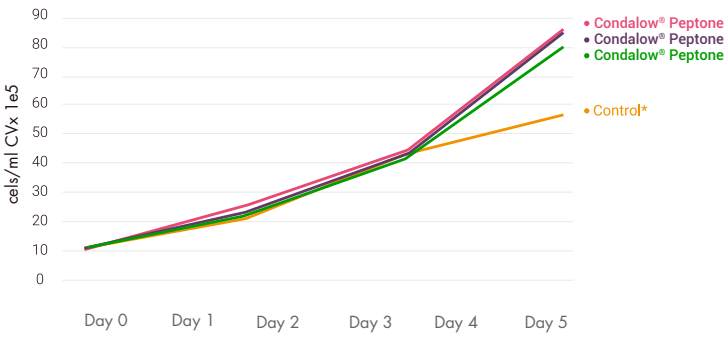
We cultured 100,000 cells/ml in 4 ml in duplicates per trial. 1 g/l peptone was added to the CDM and the cells. No peptone was added to the control. The cells were grown for five days in a CO2 (8%) incubator at 350 rpm and 37°C. Cell densities were determined daily with trypan blue in a Neubauer chamber for 5 days.

Results

Effect of Condalow® Soy Peptone on CHO-S Cell Growth*



Batch to Batch Comparison*



*Chemically Defined Medium
The data presented here are the typical values. Some minor variation was observed between assays.

Conclusions

In this study we demonstrate that the addition of Condalow® Soy Peptone stimulates the growth of the CHO cells, doubling the number of cells with respect to the control during the first 5 days. Minor variations in cell growth were observed between experimental trials.

Condalow® vs Ultrafiltered Soy Peptone: CHO-S Cell Culture Growth and Viability

Abstract

The purpose of this study is to demonstrate Condalow® Soy peptone is a good animal free supplement for growth and recombinant protein productivity enhancement. In this experiment we focus on cell growth and cell viability and how compare Condalow® Soy Peptone with ultrafiltered (UF) products.

Introduction

Condalow® Soy Peptone is a product obtained from soy protein which controlled manufacturing process ensures a low endotoxin content. This product is an excellent source of peptides, vitamins, and carbohydrates. It can be used in fermentation process, tissue culture media, vaccines, and antibodies production and a wide BioPharma process.

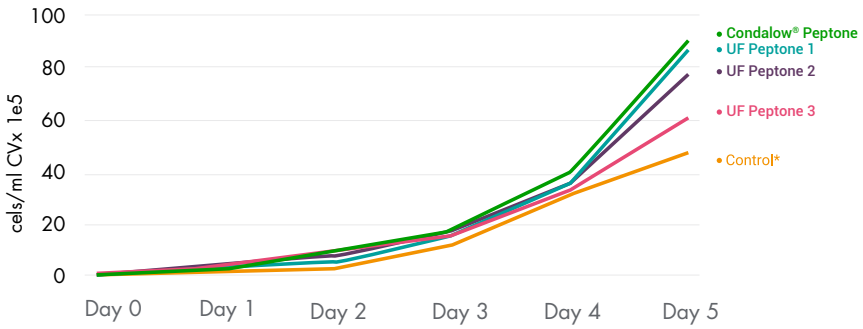
Material and methods

The peptones were prepared at 20 g/l concentration and sterilized by 0.22 µm filtration.
For this case study we used a CHO-S cell line in a serum-free, chemically defined medium.
We used a sterile Thomson 24-well plate; 10.4 ml square well, round bottom, individually wrapped.

We cultured 100,000 cells/ml in 4 ml in duplicates per trial. 1 g/l peptone was added to the CDM and the cells. No peptone was added to the control. The cells were grown for five days in a CO2 (8%) incubator at 350 rpm and 37°C.
Cell densities were determined daily with trypan blue in a Neubauer chamber for 5 days.

Results

Effect of Condalow® and UF Soy Peptone on CHO-S Cell Growth



*Chemically Defined Medium.
The data presented here are the typical values. Some minor variation was observed between assays.

Conclusions

In this study we demonstrate that the addition of Condalow® Soy Peptone stimulates the growth of the CHO cells, doubling the number of cells compared to the control during the first 5 days. Overall Condalow® Soy Peptone proves to be superior to the ultrafiltered peptones used in this study.

Condalow® vs Ultrafiltered/Non-Ultrafiltered Meat Peptone: CHO-S Cell

Abstract

The purpose of this study is to demonstrate that Condalow® Meat Peptone provides better growth and recombinant protein productivity than Ultrafiltered and non-Ultrafiltered Meat hydrolysates from multiple suppliers. In this experiment we focus on cell growth and cell viability and compare Condalow® Meat Peptone against ultrafiltered (UF) and non-ultrafiltered (NUF) products.

Introduction

Condalow® Meat Peptone is a product obtained from meat protein by a controlled manufacturing process to ensure a low endotoxin content. This product is an excellent source of peptides, vitamins, and carbohydrates. It can be used in fermentation processes, tissue culture media, vaccines, antibodies production and a wide variety of BioPharma processes.

Material and methods

The peptones were prepared at 20 g/l concentration and sterilized by 0.22 µm filtration. For this case study we used a CHO-S cell line in a serum-free, chemically defined medium.

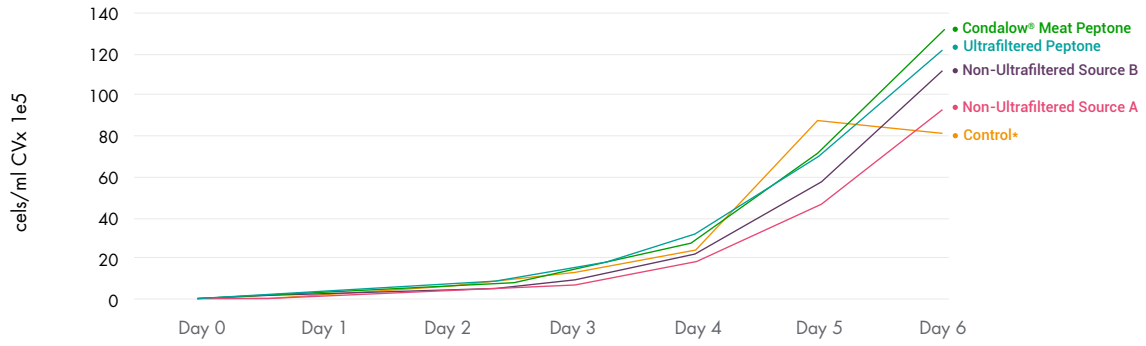
We used a sterile Thomson 24-well plate; 10.4 ml square well, round bottom, individually wrapped.

We cultured 100,000 cells/ml in 4 ml duplicates per trial. 1 g/l peptone was added to the CDM culture. No peptone was added to the control. The cells were grown for six days in a CO2 (8%) incubator at 350 rpm and 37°C.

Cell densities were determined daily with trypan blue using an automated cell counter.

Results

Effect of Condalow® and UF & NUF Meat Peptone on CHO-S Cell Growth



*Chemically Defined Medium.
The data presented here are the typical values. Some minor variation was observed between assays.

Conclusions

In this study we demonstrate that the addition of Condalow® Meat Peptone stimulates the growth of the CHO cells, doubling the number of cells with respect to the control during the first 6 days. Overall Condalow® Meat Peptone proves to be a superior nutrient source to ultrafiltered and non-ultrafiltered meat peptones while retaining the low endotoxin benefits of ultrafiltration.

Condalow® Casein Peptone vs Competitors Casein Peptone: CHO-S Cell.

Abstract

The purpose of this study is to demonstrate that Condalow® Casein Peptone provides better growth and recombinant protein productivity than Casein hydrolysates from multiple suppliers. In this experiment we focus on cell growth and cell viability and compare Condalow® Casein Peptone against other Casein Peptone products.

Introduction

Condalow® Casein Peptone is a product obtained from dairy protein by a controlled manufacturing process to ensure a low endotoxin content. This product is an excellent source of peptides, vitamins, and carbohydrates. It can be used in fermentation processes, tissue culture media, vaccines, antibody production and a wide variety of BioPharma processes.

Material and methods

The peptones were prepared at 20 g/l concentration and sterilized by 0.22 µm filtration. For this case study we used a CHO-S cell line in a serum-free, chemically defined medium.

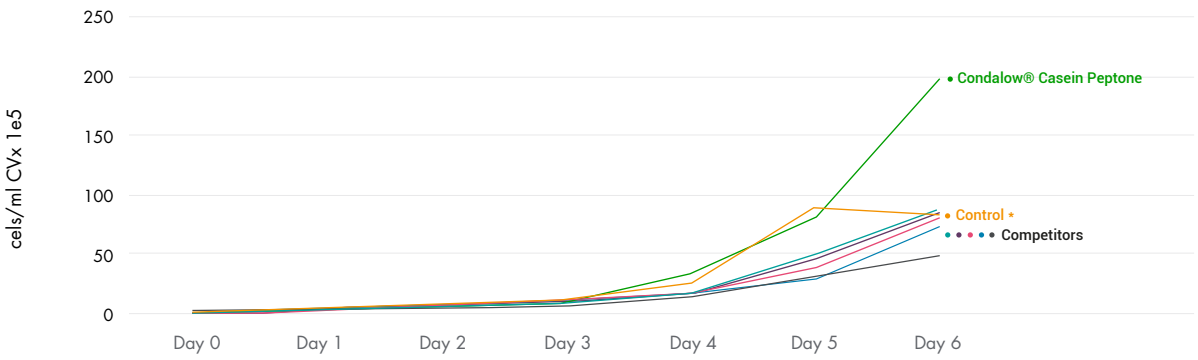
We used a sterile Thomson 24-well plate; 10.4 ml square well, round bottom, individually wrapped.

We cultured 100,000 cells/ml in 4 ml duplicates per trial. 1 g/l peptone was added to the CDM culture. No peptone was added to the control. The cells were grown for six days in a CO2 (8%) incubator at 350 rpm and 37°C.

Cell densities were determined daily with trypan blue using an automated cell counter.

Results

Effect of Condalow® and Competitors Casein Peptone on CHO-S Cell Growth



*Chemically Defined Medium.
The data presented here are the typical values. Some minor variation was observed between assays.

Conclusions

In this study we demonstrate that the addition of Condalow® Casein Peptone stimulates the growth of the CHO cells, doubling the number of cells with respect to the control during the first 6 days. Overall Condalow® Casein Peptone proves to be a superior nutrient source compared to standard peptones with exceptionaly low endotoxin concentration.

Fed Batch Condalow® Soy peptone Cell Culture: CHO-S growth and viability.

Abstract

The purpose of this study is to demonstrate that Condalow® Soy peptone is an effective animal free supplement for growth and recombinant protein productivity enhancement. In this experiment we focus on cell growth and cell viability using our Condalow® Soy peptone as the feed for our cultures.

Introduction

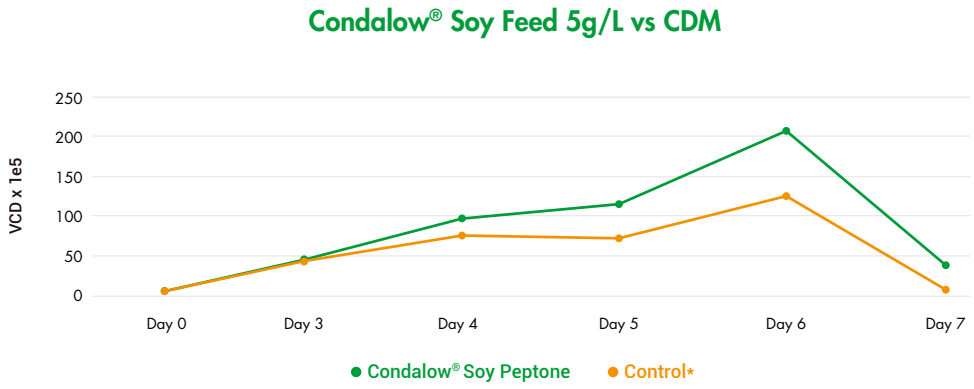
Condalow® Soy Peptone is a product obtained from vegetal protein with controlled manufacturing process to ensure a low endotoxin content. This product is an excellent source of peptides, vitamins, and carbohydrates. It can be used in fermentation processes, tissue culture media, vaccines, antibody production, and a wide range BioPharma processes.

Material and methods

The peptones were prepared at 20 g/L concentration and sterilized by 0.22 µm filtration. For this case study, we used a CHO-S cell line in a serum-free, chemically defined medium (CDM). We used a sterile 24-well plate; 10.4 mL square well, round bottom.

We cultured 300,000 cells/mL in 4 mL in duplicates per trial. 5 g/L peptones were added as feed to the CDM* at a cell population of 4 million/mL. The cells were grown for five days in a CO2 (8%) incubator at 350 rpm and 37 C. Viable cell densities were determined daily with trypan blue using an automated cell counter.

Results



*Chemically Defined Medium.
The data presented here are typical values. Some minor variation was observed between assays.

Conclusions

In this study we demonstrate that the addition of Condalow® Soy peptone stimulates the growth of the CHO-S cells, doubling the number of cells compared with the control at day 4.

Fed Batch Condalow® Wheat peptone Cell Culture: CHO-S growth and viability.

Abstract

The purpose of this study is to demonstrate that Condalow® Wheat peptone is an effective animal free supplement for growth and recombinant protein productivity enhancement. In this experiment we focus on cell growth and cell viability using our Condalow® Wheat peptone as the feed for our cultures.

Introduction

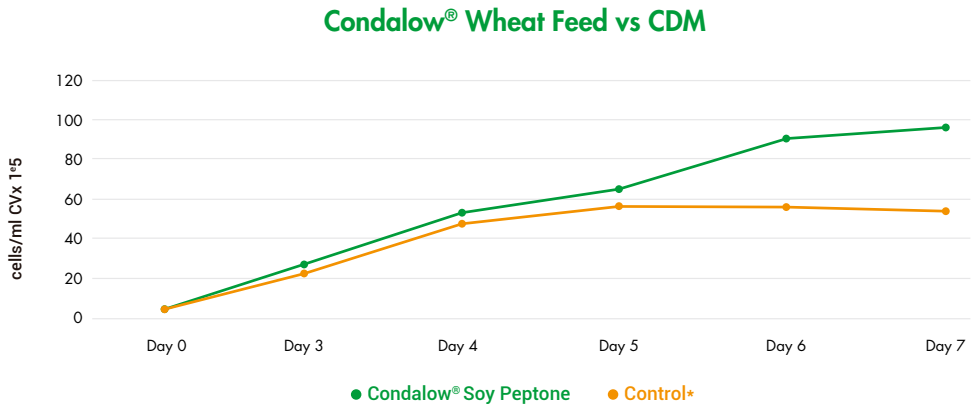
Condalow® Soy Peptone is a product obtained from vegetal protein with controlled manufacturing process to ensure a low endotoxin content. This product is an excellent source of peptides, vitamins, and carbohydrates. It can be used in fermentation processes, tissue culture media, vaccines, antibody production, and a wide range BioPharma processes.

Material and methods

The peptones were prepared at 20 g/l concentration and sterilized by 0.22 µm filtration. For this case study, we used a CHO-S cell line in a serum-free, chemically defined medium (CDM). We used a sterile 24-well plate; 10.4 ml square well, round bottom.

We cultured 300,000 cells/ml in 4 ml in duplicates per trial. 5 g/l peptones were added as feed to the CDM on day 3. The cells were grown for five days in a CO2 (8%) incubator at 350 rpm and 37ºC. Viable cell densities were determined daily with trypan blue using an automated cell counter.

Results



*Chemically Defined Medium.
The data presented here are typical values. Some minor variation was observed between assays.

Conclusions

In this study we demonstrate that the addition of Condalow® Soy peptone stimulates the growth of the CHO-S cells, doubling the number of cells compared with the control at day 4.

Condalow® Soy Peptone: CHO-S promotion of protein production.

Abstract

The purpose of this study is to demonstrate Condalow® Soy Peptone improves growth and recombinant protein productivity enhancement. In these trials, we focus on protein production.

Introduction

Condalow® Soy Peptone is a product obtained from soy protein with a controlled manufacturing process to ensure a low endotoxin content. This product is an excellent source of peptides, vitamins, and carbohydrates. It can be used in fermentation processes, tissue culture media, vaccines, antibody production, and a wide range of BioPharma processes.

Material and methods

The peptone was prepared at 20 g/l concentration and sterilized by 0.22 µm filtration. For this application note, we used a CHO-S cell line in a serum-free, chemically defined medium.

We used a sterile 125ml flask to culture 30ml of cells, we cultured CHO cells in flasks with CDM* (control) and flasks with CDM plus 1g/l Condalow® Soy peptone.

The cells were grown for seven days in a CO2 (8%) incubator at 150 rpm and 37°C.

Cell densities were determined daily with trypan blue using an automated cell counter. Cell viability and population were counted for 4 days post-transfection.

The amount of protein was determined using an FPLC chromatography system.

Results

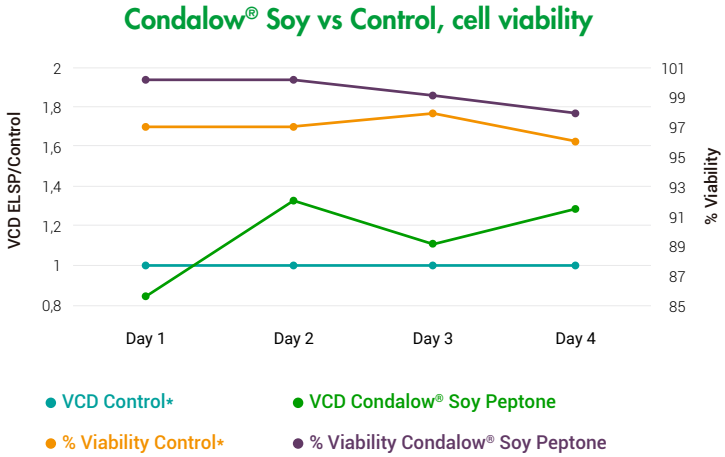


Fig 1. Viable cell density Condalow® Soy Peptone / Viable cell density Controlon the right. Measurements were carried out 4 days post-transfection.

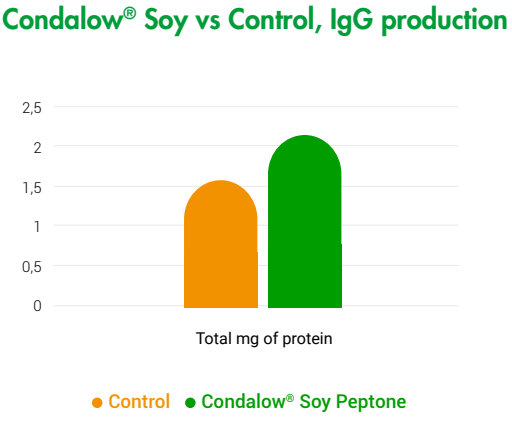


Fig 2. Transfected CHO cells IgG production in presence of Condalow® Soy peptone and control.

Conclusions

In this study we demonstrate that the addition of Condalow® Soy Peptone stimulates the production of IgG protein in CHO-S cells. We observe a 30% increase in protein production with the addition of 1g/l Condalow® Soy Peptone. This data shows an significant increase in antibody yield.

Condalow® vs Ultrafiltered Soy Peptone: HEK-293F Cell Culture Growth.

Abstract

The purpose of this study is to demonstrate the effectiveness of Condalow® Soy Peptone, an animal-free supplement, in enhancing both growth and recombinant protein productivity. The study involves a comparison between Condalow® Soy Peptone and ultrafiltered (UF) products, with a focus on cell growth and viability.

Introduction

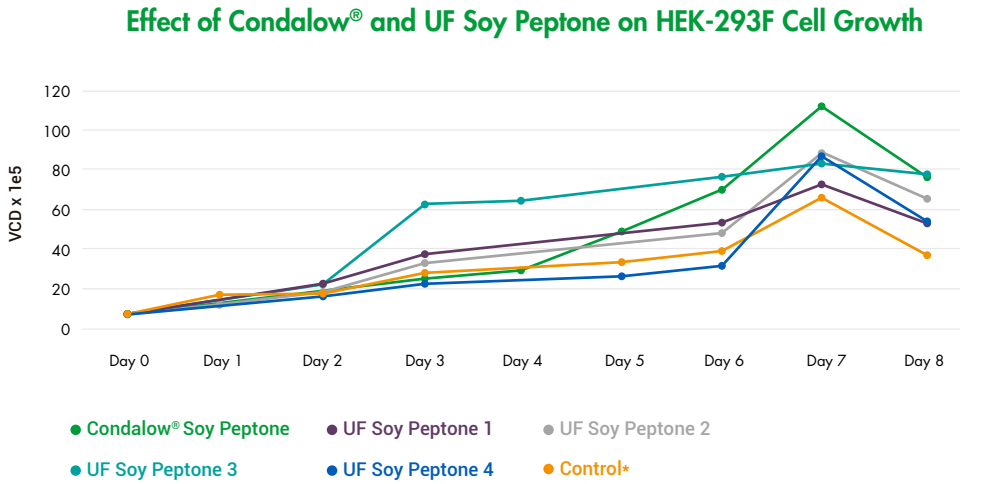
Condalow® Soy Peptone is a vegetable protein-derived product with a controlled manufacturing process to ensure a low endotoxin content. This product is a rich source of peptides, vitamins, and carbohydrates, and can be utilized in various applications including fermentation processes, tissue culture media, vaccine production, antibody production, and a wide range of BioPharma processes.

Material and methods

The peptones were prepared at a concentration of 20 g/L and sterilized by 0.22 µm filtration. In this case study, we utilized a HEK-293F cell line in a serum-free, chemically defined medium (CDM). Cells were cultured in a sterile 24-well plate with a 10.4 mL square well, round bottom.

We cultured 600,000 cells/mL in 4 mL duplicates per trial. Peptones were added to the CDM* and the cells at a concentration of 2 g/L. The control group did not receive any peptones. The cells were cultured for eight days in a CO_2 (8%) incubator at 350 rpm and 37ºC. Viable cell densities were determined daily with trypan blue using an automated cell counter. The media was completely refreshed on day 4.

Results



*Chemically Defined Medium.
The data presented here are typical values. Some minor variation was observed between assays.

Conclusions

In this study, we demonstrate that the addition of Condalow® Soy Peptone stimulates the growth of HEK-293F cells, resulting in a doubling of the cell count compared to the control by day 7. Our results indicate that Condalow® Soy Peptone provides superior growth compared to the ultrafiltered peptones used in this study.

Fed-Batch Condalow® Soy Peptone: HEK-293F Cell Culture Growth.

Abstract

The purpose of this study is to demonstrate Condalow® Soy peptone is a good animal free supplement for growth and recombinant protein productivity enhancement. In this experiment we focus on cell growth and cell viability.

Introduction

Condalow® Soy Peptone is a product obtained from vegetal protein with a controlled manufacturing process to ensure a low endotoxin content. This product is a excellent source of peptides, vitamins, and carbohydrates. It can be used in fermentation processes, tissue culture media, vaccines, antibody production, and a wide range of BioPharma processes.

Material and methods

The peptone was prepared at 20 g/l concentration and sterilized by 0.22 µm filtration. For this case study we used a HEK-293F cell line in a serum-free, chemically defined medium.

We used a sterile 24-well plate; 10.4 ml square well, round bottom.

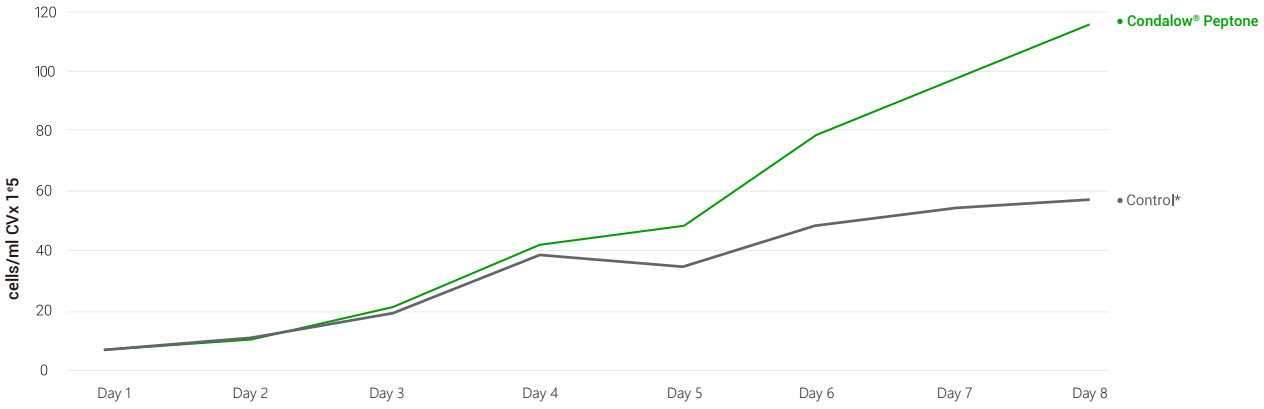
We cultured 650,000 cells/ml in 4 ml with duplicates per trial. 2 g/l peptone was added to the CDM and the cells. No peptone was added to the control. The cells were grown for five days in a CO2 (8%) incubator at 350 rpm and 37°C.

Cell densities were determined daily with trypan blue using an automated cell counter.

The media was completely changed on day 4.

Results

Effect of Condalow® Soy Peptone on HEK-293F Cell Growth*



*Chemically Defined Medium.
The data presented here are the typical values. Some minor variation was observed between assays.

Conclusions

In this study we demonstrate that the addition of Condalow® Soy Peptone stimulates the growth of the HEK-293F cells, doubling the number of cells compared with the control at day 7. With this feed batch strategy we extend the life of the HEK-293F cells which translates into higher biomass production.

Feed Batch Condalow® Wheat Peptone: HEK-293F Cell Culture Growth.

Abstract

The purpose of this study is to demonstrate Condalow® Wheat peptone is a good animal free supplement for growth and recombinant protein productivity enhancement. In this experiment we focus on cell growth and cell viability.

Introduction

Condalow® Wheat Peptone is a product obtained from vegetal protein with a controlled manufacturing process to ensure a low endotoxin content. This product is an excellent source of peptides, vitamins, and carbohydrates. It can be used in fermentation processes, tissue culture media, vaccines, antibody production, and a wide range of BioPharma processes.

Material and methods

The peptone was prepared at 20 g/l concentration and sterilized by 0.22 µm filtration. For this case study we used a HEK-293F cell line in a serum-free, chemically defined medium.

We used a sterile 24-well plate; 10.4 ml square well, round bottom.

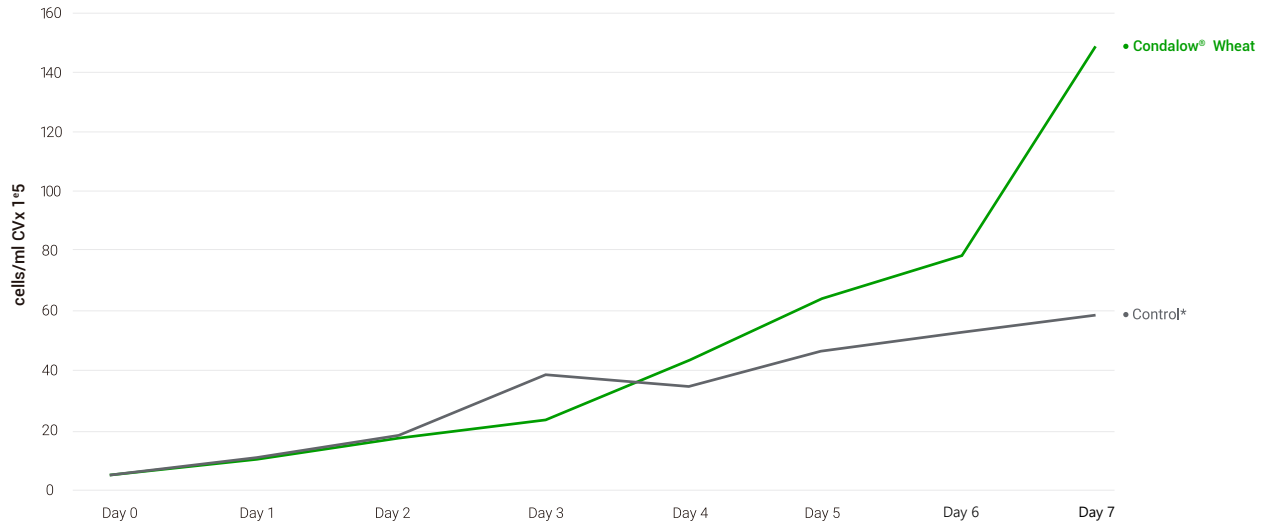
We cultured 650,000 cells/ml with 4 ml in duplicates per trial. 2 g/l peptones were added to the CDM* and the cells. No peptone was added to the control. The cells were grown for five days in a CO2 (8%) incubator at 350 rpm and 37°C.

Viable cell densities were determined daily with trypan blue using an automated cell counter.

The media was completely changed on day 4.

Results

Effect of Condalow® Wheat Peptone on HEK-293F Cell Growth*



*Chemically Defined Medium.
The data presented here are the typical values. Some minor variation was observed between assays.

Conclusions

In this study we demonstrate that the addition of Condalow® Wheat peptone stimulates the growth of the HEK-293F cells, doubling the number of cells compared with the control at day 7. With this feed batch strategy we extend the life of the HEK-293F cells which translates into higher biomass production.

Condalow® Soy Peptone Fermentation: Plasmid production

Abstract

The purpose of this study is to demonstrate Condalow® Soy peptone is a good animal free substitute in LB fermentation media, matching or increasing plasmid production in a range of competent *E. coli* cells used for cloning.

Introduction

Condalow® Soy Peptone is a product obtained from soy protein which through a controlled manufacturing process ensures a low endotoxin content. This product is an excellent source of peptides, vitamins, and carbohydrates. It can be used in fermentation processing, tissue culture media, vaccines, antibody production, and a wide range of BioPharma processes.

Material and methods

Two competent genetically modified *E. coli* strains were used in this study, JM110 and DH5α.

These cells were transformed with an ampicillin resistance plasmid. The transformant cells were inoculated to 4 ml Casein LB and Soy LB, in duplicates, respectively. The cells were left to grow overnight at 250 rpm at 37°C.

OD was measured the next morning and harvested for miniprep.
The plasmid yield was measured with nanodrop.

Results

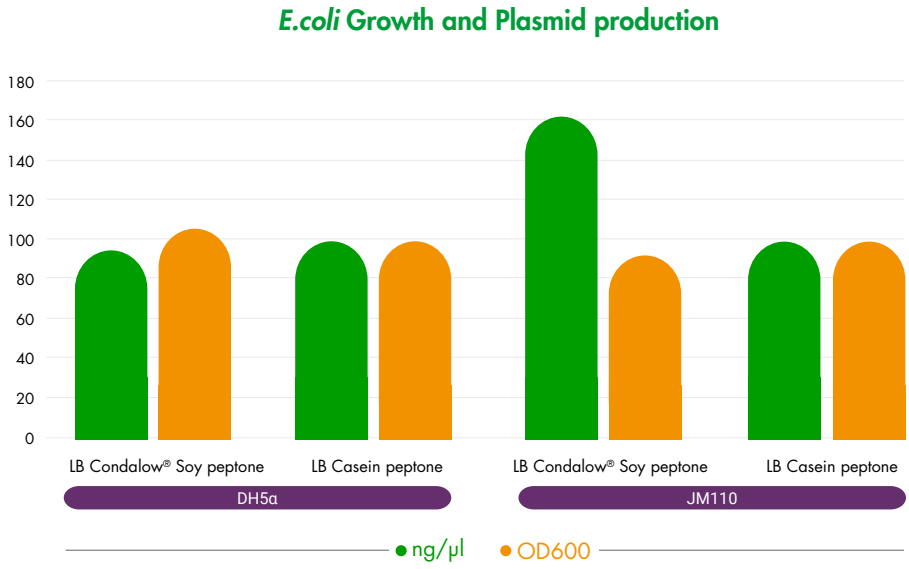


Fig. 1. In this graph Casein LB OD600 and ng/µl are set to 100% signal to plot both results.

Additional data

DH5α	ng/µl	OD600
Condalow® Soy P	473,711	1.88
Condalow® Soy P	374,134	2.1
Casein P	448,646	1.87
Casein P	438,285	1.85

JM110	ng/µl	OD600
Condalow® Soy P	359,085	1.98
Condalow® Soy P	397,361	1.83
Casein P	234,088	2.06
Casein P	230,739	1.99

Table 1: ng/ul and OD % data, showed in Fig. 1.

Conclusions

For the selected *E. coli* strains the substitution of the Casein peptone for Condalow® Soy Peptone resulted in a very similar OD600 readings and plasmid yield, we can conclude Condalow® Soy peptone is a good substitute for animal derived peptone and in some cases improves the growth and plasmid yield.

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