

Condalab®

Peptones for cell culture.

Better performance in your culture media.

Application notes



Condalab

Inspired by knowledge

Condalow®

CHO-S cell assays

- Growth and viability with Condalow® Soy 3
- Comparison Condalow® Soy vs Ultrafiltered Peptones 4
- Comparison Condalow® Meat vs Ultrafiltered/non-ultrafiltered Peptones 5
- Comparison Condalow® Casein vs Casein peptones 6
- Yield increase in protein production with Condalow® Soy 7

HEK-293F cell assays

- Fed-Batch Growth with Condalow® Soy 8
- Fed-Batch Growth with Condalow® Wheat 9

Producción de plásmidos

- Fermentation processes with Condalow® Soy 10

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 biopharmaceutical processes.

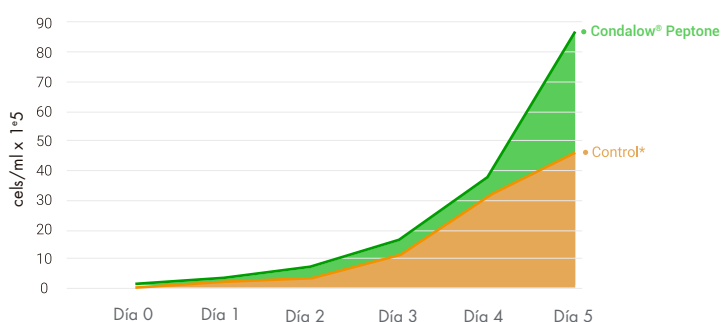
Material and methods

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.

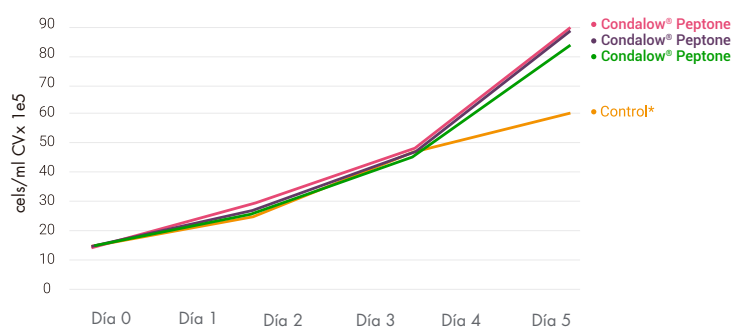
We cultured 100,000 cells/ml in 4 ml in duplicates per trial. 1 g/l Peptone was added to the CDM and the cells. No peptone was added to the control. The cells were grown for five days in a CO₂ (8%) incubator at 350 rpm and 37°C. Cell densities were determined daily with trypan blue in a Neubauer chamber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

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 processes, tissue culture media, vaccines, and antibodies production and a wide range of biopharmaceutical processes.

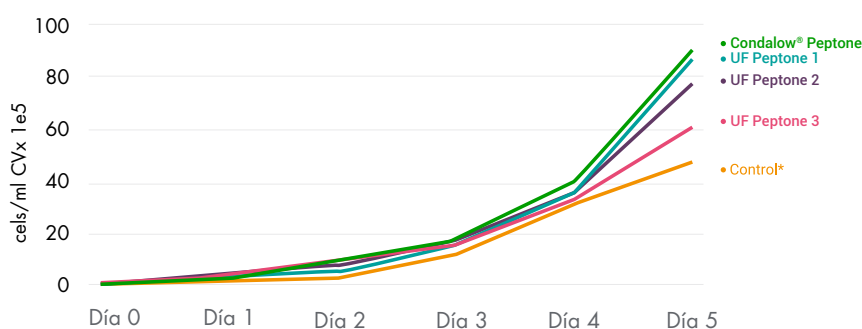
Material and methods

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® 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.

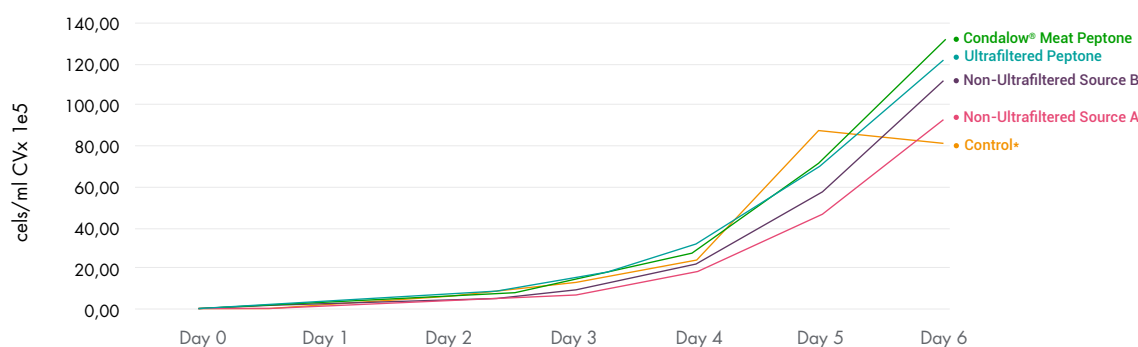
We used a sterile Thomson 24-well plate; 10.4 ml square well, round bottom, individually wrapped.

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.

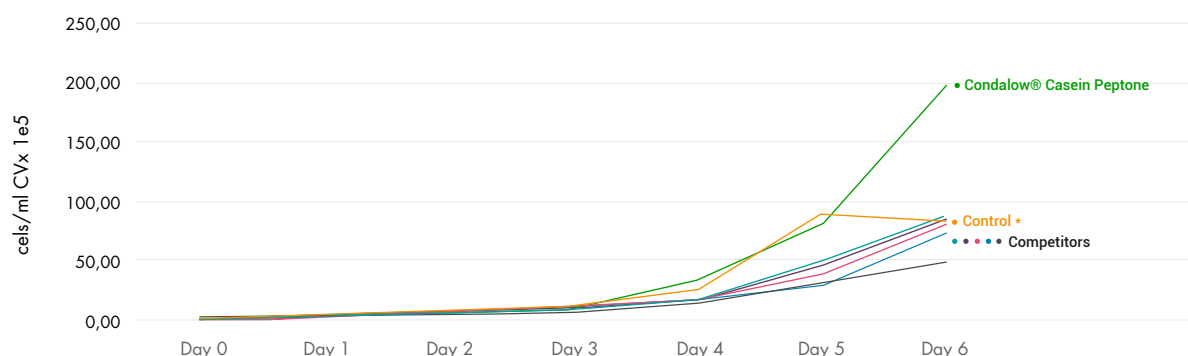
We used a sterile Thomson 24-well plate; 10.4 ml square well, round bottom, individually wrapped.

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



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 exceptionally low endotoxin concentration.

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

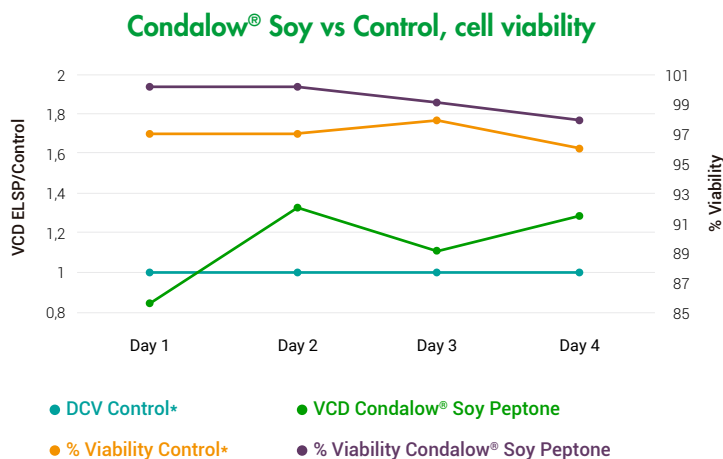


Fig 1. Viable cell density Condalow® Soy Peptone / Viable cell density Control on the right. Measurements were carried out 4 days post-transfection.

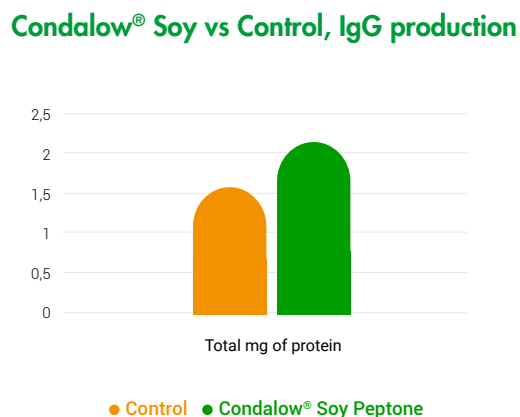


Fig 2. Transfected CHO cells IgG production in presence of Condalow® Soy peptone and control.

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.

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 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 HEK293-F cell line in a serum-free, chemically defined medium.

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

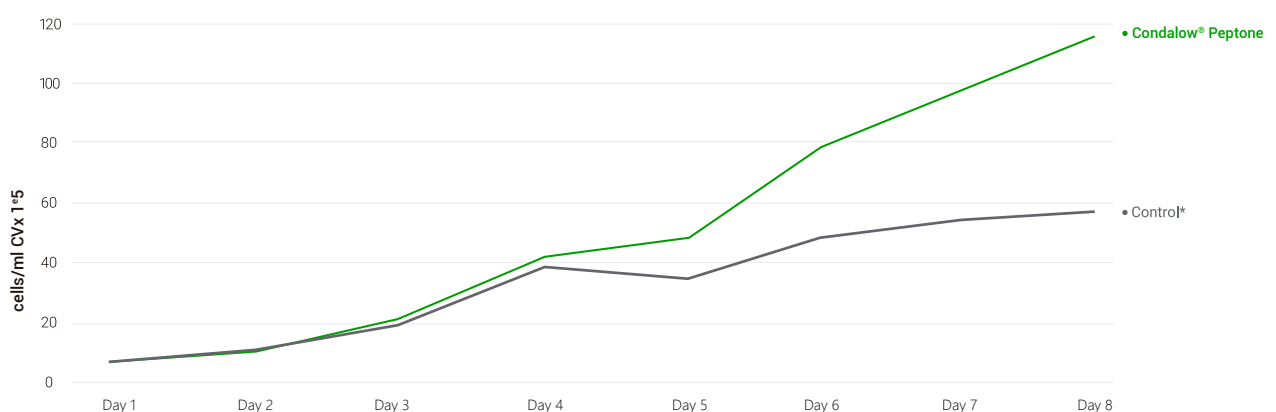
We cultured 650,000 cells/ml in 4 ml with duplicates per trial. 2 g/l peptone was added to the CDM and the cells. No peptone was added to the control. The cells were grown for five days in a CO₂ (8%) incubator at 350 rpm and 37°C.

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 HEK293-F 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 HEK293-F cells, doubling the number of cells compared with the control at day 7. With this feed batch strategy we extend the life of the HEK293F cells which translates into higher biomass production.

Feed Batch Condalow® Wheat Peptone: HEK293-F 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 HEK293-F cell line in a serum-free, chemically defined medium.

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

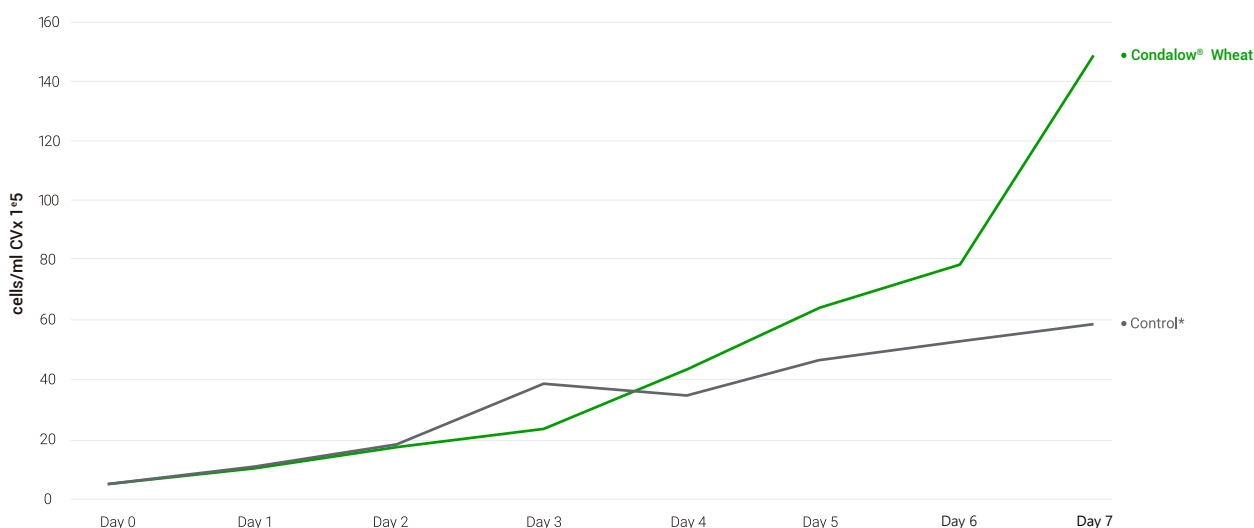
We cultured 650,000 cells/ml with 4 ml in duplicates per trial. 2 g/l peptones were added to the CDM* and the cells. No peptone was added to the control. The cells were grown for five days in a CO₂ (8%) incubator at 350 rpm and 37°C.

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 HEK293-F 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 HEK293-F cells, doubling the number of cells compared with the control at day 7. With this feed batch strategy we extend the life of the HEK293F 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 that ensures a low endotoxin content. This product is an excellent source of peptides, vitamins, and carbohydrates. It can be used in fermentation processes, cell tissue culture media, vaccine and antibodies production, and a wide range of biopharmaceutical processes.

Material and methods

Two competent genetically modified *E. coli* strains were used in this study, JM110 and DH5a.

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

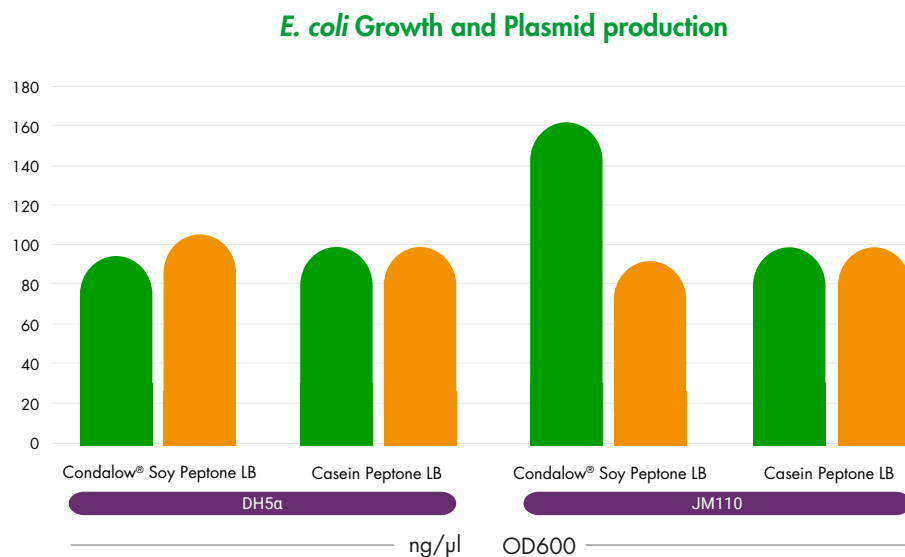


Fig. 1. In this graph Casein LB OD600 and ng/µl are set to 100% signal to plot both results.

Additional data

DH5a	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 that 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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