

# BPL\_TEST2\_Batch - demo

In [1]: `run -i BPL_TEST2_Batch_explore.py`

Windows - run FMU pre-compiled JModelica 2.14

Model for bioreactor has been setup. Key commands:

- `par()` - change of parameters and initial values
  - `init()` - change initial values only
  - `simu()` - simulate and plot
  - `newplot()` - make a new plot
  - `show()` - show plot from previous simulation
  - `disp()` - display parameters and initial values from the last simulation
  - `describe()` - describe culture, broth, parameters, variables with values / unit
- s

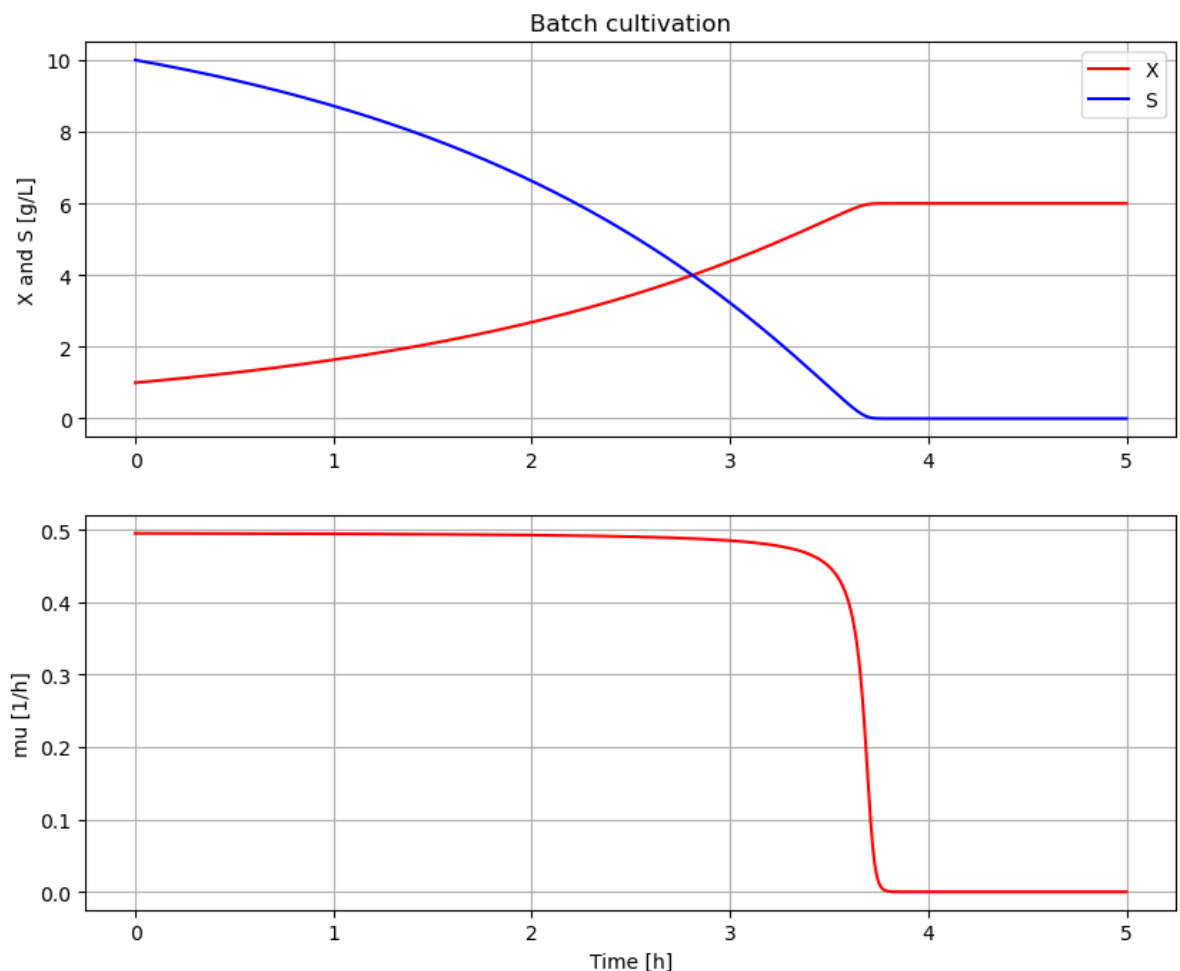
Note that both `disp()` and `describe()` takes values from the last simulation

Brief information about a command by `help()`, eg `help(simu)`

Key system information is listed with the command `system_info()`

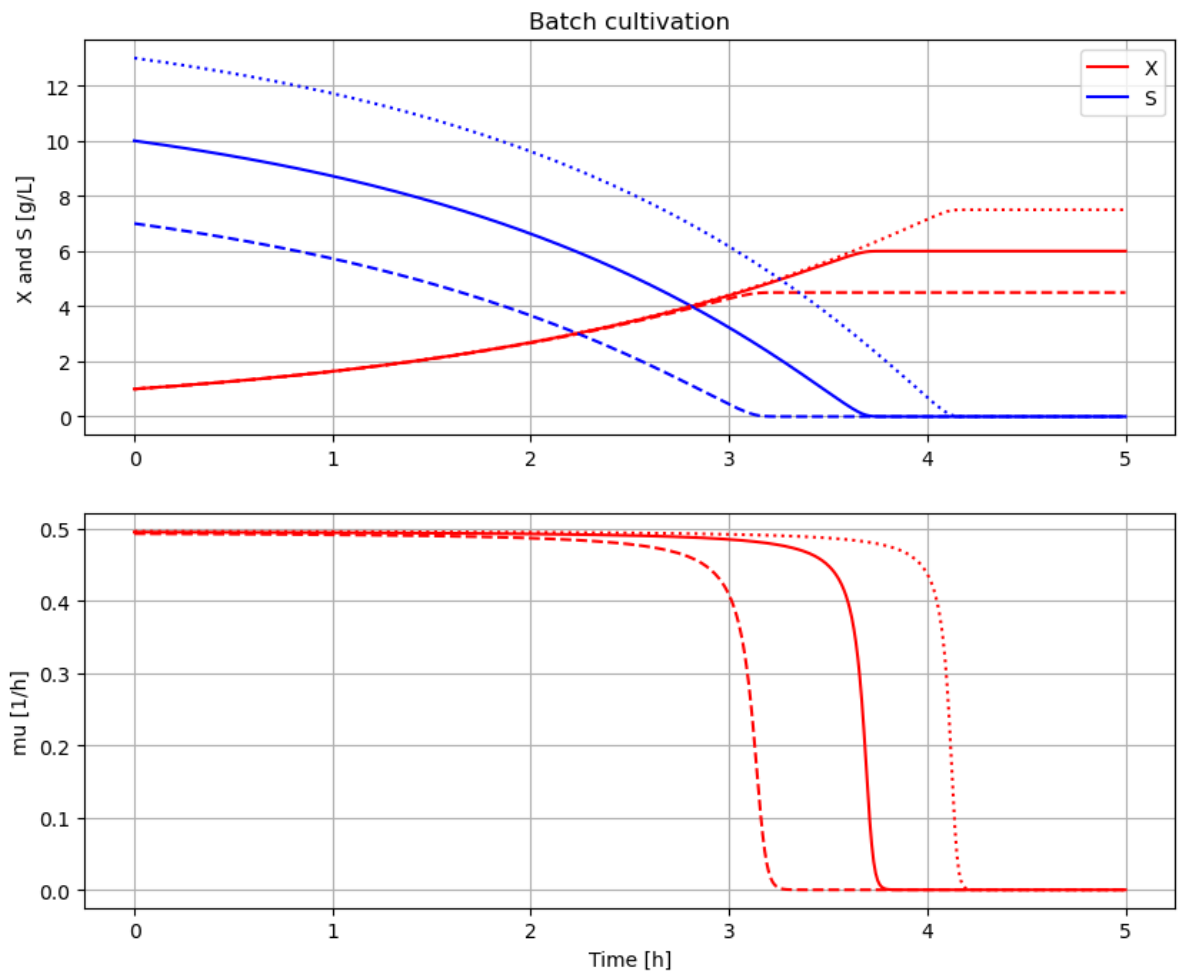
In [2]: `%matplotlib inline`  
`plt.rcParams['figure.figsize'] = [25/2.54, 20/2.54]`

In [3]: `# Simulation with default values of the process`  
`newplot(plotType='TimeSeries')`  
`simu()`



```
In [4]: # Simulation were initial value of substrate VS_0 is varied
newplot(plotType='TimeSeries')
for value in [10, 7, 13]: init(VS_0=value); simu(5)

# Restore default value of VS_0
init(VS_0=10)
```



```
In [5]: disp('culture')
```

```
Y : 0.5
qSmax : 1.0
Ks : 0.1
```

```
In [6]: describe('mu')
```

```
Cell specific growth rate variable : 0.0 [ 1/h ]
```

```
In [7]: describe('parts')
```

```
['bioreactor', 'bioreactor.culture', 'liquidphase', 'MSL']
```

```
In [8]: describe('MSL')
```

```
MSL: none
```

```
In [9]: system_info()
```

## System information

- OS: Windows
- Python: 3.10.6
- Scipy: not installed in the notebook
- PyFMI: 2.9.8
- FMU by: JModelica.org
- FMI: 2.0
- Type: FMUModelCS2
- Name: BPL\_TEST2.Batch
- Generated: 2022-10-06T08:12:54
- MSL: 3.2.2 build 3
- Description: Bioprocess Library version 2.1.0
- Interaction: FMU-explore version 0.9.6

In [ ]: