**Values of absorbance and concentration for calibration curve plotting**

**Potassium dichromate**

|  |  |
| --- | --- |
| Absorbance | Concentration mg/ml |
| 0 | 0 |
| 0.15 | 0.2 |
| 0.35 | 0.4 |
| 0.69 | 0.6 |
| 0.95 | 0.8 |
| 0.98 | 1 |

1. **You are to use this data’s to plot a calibration curve and obtain a calibration curve equation.**
2. **The calibration curve equation is to be used to generate concentration data’s for cell growth and bioflocculant production.**
3. **Each concentration data is to be plotted against time in hours. The graph obtained is to be discussed and mathematical model generated for each of them.**

**Glucose**

|  |  |
| --- | --- |
| Absorbance | Concentration mg/ml |
| 0 | 0 |
| 0.08 | 0.2 |
| 0.15 | 0.4 |
| 0.32 | 0.6 |
| 0.61 | 0.8 |
| 0.96 | 1 |

1. **You are to use this data’s to plot a calibration curve and obtain a calibration curve equation.**
2. **The calibration curve equation is to be used to generate concentration data’s for substrate consumption**
3. **The concentration data is to be plotted against time in hours. The graph obtained is to be discussed and mathematical model generated.**

**Cell growth**

|  |  |
| --- | --- |
| Time(hrs) | Absorbance |
| 0.0 | 0.29 |
| 0.5 | 0.32 |
| 1.0 | 0.47 |
| 1.5 | 0.60 |
| 2.0 | 0.70 |
| 2.5 | 0.74 |
| 3.0 | 0.76 |
| 3.5 | 0.77 |
| 4.0 | 0.77 |
| 4.5 | 0.70 |
| 5.0 | 0.57 |
| 5.5 | 0.54 |
| 6.0 | 0.42 |

**Bioflocculant production**

|  |  |
| --- | --- |
| Time(hrs) | Absorbance |
| 0.0 | 0.48 |
| 0.5 | 0.61 |
| 1.0 | 0.75 |
| 1.5 | 0.87 |
| 2.0 | 0.96 |
| 2.5 | 1.00 |
| 3.0 | 1.03 |
| 3.5 | 1.05 |
| 4.0 | 1.07 |
| 4.5 | 0.95 |
| 5.0 | 0.84 |
| 5.5 | 0.77 |
| 6.0 | 0.66 |

**Substrate consumption**

|  |  |
| --- | --- |
| Time(hrs) | Absorbance |
| 0.0 | 0.62 |
| 0.5 | 0.61 |
| 1.0 | 0.60 |
| 1.5 | 0.59 |
| 2.0 | 0.57 |
| 2.5 | 0.53 |
| 3.0 | 0.47 |
| 3.5 | 0.41 |
| 4.0 | 0.36 |
| 4.5 | 0.51 |
| 5.0 | 0.61 |
| 5.5 | 0.73 |
| 6.0 | 0.86 |

**The three parameters: Cell growth concentration, bioflocculant production concentration and substrate consumption concentration should be plotted against time and discussed.**