**Appendix A.** **Supplementary data**

The following is the supplementary data to this article:

Table A.1 Complete design of experiments

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Test | Order of execution | Adsorbent concentration (%) | Filtering auxiliary concentration (%) | Time (min) | Temperature (oC) |
|
| 1 | 10 | 0.75 | 0.2 | 20 | 65 |
| 2 | 15 | 0.75 | 0.2 | 20 | 115 |
| 3 | 8 | 0.75 | 0.2 | 50 | 65 |
| 4 | 3 | 0.75 | 0.2 | 50 | 115 |
| 5 | 2 | 0.75 | 0.4 | 20 | 65 |
| 6 | 9 | 0.75 | 0.4 | 20 | 115 |
| 7 | 13 | 0.75 | 0.4 | 50 | 65 |
| 8 | 18 (C) | 0.75 | 0.4 | 50 | 115 |
| 9 | 14 | 2 | 0.2 | 20 | 65 |
| 10 | 19 (C) | 2 | 0.2 | 20 | 115 |
| 11 | 16 | 2 | 0.2 | 50 | 65 |
| 12 | 6 | 2 | 0.2 | 50 | 115 |
| 13 | 5 | 2 | 0.4 | 20 | 65 |
| 14 | 4 | 2 | 0.4 | 20 | 115 |
| 15 | 12 | 2 | 0.4 | 50 | 65 |
| 16 | 17 (C) | 2 | 0.4 | 50 | 115 |
| 20 | 22 | 2.625 | 0.3 | 35 | 90 |
| 21 | 27 | 0.125 | 0.3 | 35 | 90 |
| 22 | 23 | 1.375 | 0.5 | 35 | 90 |
| 23 | 25 | 1.375 | 0.1 | 35 | 90 |
| 24 | 20 | 1.375 | 0.3 | 65 | 90 |
| 25 | 22 | 1.375 | 0.3 | 5 | 90 |
| 26 | 24 | 1.375 | 0.3 | 35 | 140 |
| 27 | 21 | 1.375 | 0.3 | 35 | 40 |
| 17 (C) | 7 | 1.375 | 0.3 | 35 | 90 |
| 18 (C) | 11 | 1.375 | 0.3 | 35 | 90 |
| 19 (C) | 1 | 1.375 | 0.3 | 35 | 90 |

Table A.2 Factors and levels of the design of experiments adopted to optimize soybean oil

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variables** | **Levels** | | | | |
| **−2** | **-1** | **0** | **1** | **2** |
| **Adsorbent concentration (%)** | 0.125 | 0.75 | 1.375 | 2 | 2.625 |
| **Filtering Auxiliary concentration (%)** | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 |
| **Time (min)** | 5 | 20 | 35 | 50 | 65 |
| **Temperature (oC)** | 40 | 65 | 90 | 115 | 140 |

Table A.3 Desirability function

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Results obtained using cellulosic Filtering Auxiliary | | | Results obtained using mineral Filtering Auxiliary | | |
| Variable | Chlorophyll | Lovibond Yellow | Lovibond Red | Chlorophyll | Lovibond Yellow | Lovibond Red |
| Mean | 0.347 | 0.982 | 0.705 | 0.280 | 0.795 | 0.566 |
| Minimum | 0.052 | 0.729 | 0.469 | 0.063 | 0.186 | 0.263 |
| Maximum | 0.822 | 1.000 | 1.167 | 0.789 | 1.000 | 1.000 |

Table A.4Response variables for the filtering auxiliary

|  |  |  |
| --- | --- | --- |
| Response variable | Minimum acceptable (*Li*) | Maximum acceptable (*Ui*) |
| Chlorophyll | 0.1 | 0.6 |
| Lovibond Yellow | 0.75 | 1 |
| Lovibond Red | 0.5 | 1 |