**Dataset of XGB algorithm-based model for predicting the contents of oxygenated components in bio-oil**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No. | Biomass Types | pretreatment | C | H | O | N | PT | PS | FR | Acids | Phenols | Ketones+aldehydes | Ref |
| 1 | Chinese fir | -- | 47.52 | 5.68 | 46.64 | 0.11 | 450 | 500 | 100 | 24.32 | 47.13 | 23.86 | [1] |
| 2 | Chinese fir | HCl | 50.55 | 5.78 | 43.66 | 0 | 450 | 500 | 100 | 19.51 | 58.3 | 19.89 | [1] |
| 3 | Chinese fir | H3PO4 | 49.13 | 5.72 | 45.15 | 0 | 450 | 500 | 100 | 22.36 | 55.98 | 18.68 | [1] |
| 4 | Chinese fir | HCOOH | 48.91 | 5.83 | 45.26 | 0 | 450 | 500 | 100 | 30.47 | 50.73 | 16.28 | [1] |
| 5 | Chinese fir | CH3COOH | 48.53 | 5.73 | 45.74 | 0 | 450 | 500 | 100 | 25.59 | 54.78 | 17.27 | [1] |
| 6 | Chinese fir | NH3 | 48.72 | 5.71 | 45.57 | 0 | 450 | 500 | 100 | 29.94 | 52.01 | 15.69 | [1] |
| 7 | Chinese fir | KOH | 48.72 | 5.81 | 45.47 | 0 | 450 | 500 | 100 | 34.14 | 48.33 | 14.64 | [1] |
| 8 | bamboo | -- | 47.9 | 6.3 | 43.4 | 0.5 | 550 | 250 | 300 | 19.49 | 39.35 | 10.92 | [2] |
| 9 | bamboo | Deionized water | 49.3 | 6.5 | 42.9 | 0.7 | 550 | 250 | 300 | 16.12 | 41.26 | 9.29 | [2] |
| 10 | bamboo | Aqueous solution of phenol | 50.6 | 6.4 | 41.9 | 0.6 | 550 | 250 | 300 | 11.32 | 46.56 | 5.02 | [2] |
| 11 | bamboo | Aqueous solution of guaiacol | 50.5 | 6.2 | 42.2 | 0.6 | 550 | 250 | 300 | 13.83 | 46.02 | 4.23 | [2] |
| 12 | Chinese fir | -- | 47.76 | 5.66 | 46.58 | 0 | 450 | 500 | 100 | 24.28 | 46.98 | 23.73 | [3] |
| 13 | Chinese fir | LHCF | 48.79 | 5.8 | 45.41 | 0 | 450 | 500 | 100 | 21.19 | 55.94 | 18.04 | [3] |
| 14 | Chinese fir | MHCF | 49.94 | 5.85 | 44.21 | 0 | 450 | 500 | 100 | 19.13 | 57.69 | 18.65 | [3] |
| 15 | Chinese fir | SHCF | 51.88 | 5.89 | 42.23 | 0 | 450 | 500 | 100 | 18.49 | 59.84 | 17.78 | [3] |
| 16 | Chinese fir | LHCF-A | 49.13 | 5.88 | 44.99 | 0 | 450 | 500 | 100 | 20.39 | 45.47 | 22.69 | [3] |
| 17 | Chinese fir | MHCF-A | 50.08 | 5.92 | 44 | 0 | 450 | 500 | 100 | 19.13 | 46.97 | 23.56 | [3] |
| 18 | Chinese fir | SHCF-A | 52.1 | 5.99 | 41.91 | 0 | 450 | 500 | 100 | 18.25 | 47.22 | 24.36 | [3] |
| 19 | Cotton stalk | -- | 48.43 | 6.93 | 37.18 | 0.93 | 500 | 2000 | 500 | 39.17 | 18.1 | 12.91 | [4] |
| 20 | Cotton stalk | Torrefaction 220 | 51.92 | 5.95 | 34.03 | 0.91 | 500 | 2000 | 500 | 30.84 | 20.61 | 20.4 | [4] |
| 21 | Cotton stalk | Torrefaction 250 | 56.18 | 5.43 | 27.64 | 0.83 | 500 | 2000 | 500 | 23.15 | 22.95 | 15.54 | [4] |
| 22 | Cotton stalk | Torrefaction 280 | 65.35 | 4.92 | 17.49 | 0.96 | 500 | 2000 | 500 | 17.32 | 32.8 | 15.38 | [4] |
| 23 | Cotton stalk | -- | 45.16 | 6.28 | 42.35 | 0.67 | 500 | 250 | 300 | 31.29 | 18.56 | 19.13 | [5] |
| 24 | Cotton stalk | Washing | 46.93 | 6.15 | 41.93 | 0.65 | 500 | 250 | 300 | 25.15 | 23.14 | 16.81 | [5] |
| 25 | Cotton stalk | Torrefaction | 52.36 | 5.58 | 34.05 | 0.62 | 500 | 250 | 300 | 23.71 | 34.62 | 12.79 | [5] |
| 26 | Cotton stalk | Washing+ Torrefaction | 52.38 | 5.64 | 36.52 | 0.63 | 500 | 250 | 300 | 15.24 | 38.32 | 14.35 | [5] |
| 27 | Rice husk | -- | 38.23 | 5.467 | 39.446 | 0.327 | 550 | 1500 | 200 | 14.78 | 33.42 | 17.16 | [6] |
| 28 | Rice husk | HCL-washing | 39.41 | 5.345 | 39.608 | 0.358 | 550 | 1500 | 200 | 9.65 | 26.05 | 12.69 | [6] |
| 29 | Rice husk | Bio-oil-washing | 41.04 | 5.319 | 38.148 | 0.323 | 550 | 1500 | 200 | 7.42 | 27.86 | 5.28 | [6] |
| 30 | Rice husk | -- | 38.2 | 5.5 | 39.5 | 0.3 | 550 | 800 | 0 | 11.3 | 29.96 | 10.77 | [7] |
| 31 | Rice husk | Bio-oil-washing | 39.5 | 5.3 | 39.4 | 0.3 | 550 | 800 | 0 | 6.08 | 24.68 | 3.54 | [7] |
| 32 | Rice husk | Bio-oil+ Torrefaction 250 | 42.6 | 5 | 35.9 | 0.3 | 550 | 800 | 0 | 5.79 | 21.38 | 3.52 | [7] |
| 33 | Rice husk | Bio-oil+ Torrefaction 280 | 44.2 | 4.8 | 33.3 | 0.4 | 550 | 800 | 0 | 4.75 | 23.01 | 4.14 | [7] |
| 34 | Rice husk | Bio-oil+ Torrefaction 310 | 46.9 | 4.6 | 28.6 | 0.4 | 550 | 800 | 0 | 3.36 | 25.78 | 4.8 | [7] |
| 35 | Rice husk | -- | 36.58 | 4.19 | 58.73 | 0.5 | 530 | 250 | 200 | 6.55 | 40.63 | 36.66 | [8] |
| 36 | Rice husk | Torrefaction | 41.94 | 5.02 | 52.48 | 0.56 | 530 | 250 | 200 | 2.06 | 55.25 | 31.71 | [8] |
| 37 | Rice husk | HCI | 39.59 | 5.67 | 54.3 | 0.44 | 530 | 250 | 200 | 1.45 | 26.45 | 48.24 | [8] |
| 38 | Rice husk | HCI+ ultrasound | 39.78 | 5.8 | 54.03 | 0.39 | 530 | 250 | 200 | 1.29 | 24.85 | 41.23 | [8] |
| 39 | Rice husk | HCI + Torrefaction | 39.7 | 5.72 | 54.19 | 0.39 | 530 | 250 | 200 | 2.21 | 23.17 | 51.53 | [8] |
| 40 | Rice husk | Torrefaction+ HCI | 47.18 | 5.49 | 46.83 | 0.5 | 530 | 250 | 200 | 2.62 | 45.07 | 42.03 | [8] |
| 41 | Rice husk | HCI + ultrasound+ Torrefaction | 42.86 | 5.33 | 51.41 | 0.4 | 530 | 250 | 200 | 3.67 | 45.81 | 37.63 | [8] |
| 42 | Rice husk | Torrefaction+ HCI + ultrasound | 46.95 | 5.18 | 47.43 | 0.44 | 530 | 250 | 200 | 4.09 | 46.54 | 37.31 | [8] |
| 43 | Rice husk | Wood vinegar | 44.75 | 5.19 | 49.6 | 0.46 | 530 | 250 | 200 | 4.4 | 43.92 | 37.63 | [8] |
| 44 | Rice husk | Wood vinegar + Torrefaction | 44.08 | 5.16 | 50.38 | 0.38 | 530 | 250 | 200 | 2.62 | 31.86 | 34.06 | [8] |
| 45 | Rice husk | Torrefaction+ Wood vinegar | 44.45 | 5.01 | 49.9 | 0.64 | 530 | 250 | 200 | 2.62 | 52.31 | 27.35 | [8] |
| 46 | Corn stalk | -- | 44.17 | 5.81 | 49.61 | 0.41 | 550 | 250 | 400 | 20.84 | 25.95 | 21.21 | [9] |
| 47 | Corn stalk | Torrefaction 230 | 46.33 | 5.68 | 47.09 | 0.4 | 550 | 250 | 400 | 22.29 | 27.48 | 22.45 | [9] |
| 48 | Corn stalk | Torrefaction 260 | 48.95 | 5.6 | 45.05 | 0.39 | 550 | 250 | 400 | 18.55 | 34.5 | 22.74 | [9] |
| 49 | Corn stalk | Torrefaction 290 | 56.57 | 4.97 | 37.94 | 0.53 | 550 | 250 | 400 | 16.87 | 47.48 | 9.01 | [9] |
| 50 | Corn stalk | Water washed | 45.43 | 5.97 | 48.41 | 0.18 | 550 | 250 | 400 | 14.69 | 20.01 | 15.58 | [9] |
| 51 | Corn stalk | Water washed 230 | 46.45 | 5.9 | 46.96 | 0.19 | 550 | 250 | 400 | 15.86 | 16.34 | 15.92 | [9] |
| 52 | Corn stalk | Water washed 260 | 47.94 | 5.89 | 45.97 | 0.2 | 550 | 250 | 400 | 12.48 | 17.24 | 16.62 | [9] |
| 53 | Corn stalk | Water washed 290 | 49.56 | 5.69 | 44.52 | 0.23 | 550 | 250 | 400 | 8.89 | 15.17 | 16.07 | [9] |
| 54 | Corn stalk | Aqueous phase oil washed | 46.16 | 6 | 47.58 | 0.26 | 550 | 250 | 400 | 11.17 | 18.47 | 15.04 | [9] |
| 55 | Corn stalk | Aqueous phase oil washed 230 | 46.9 | 5.86 | 46.47 | 0.27 | 550 | 250 | 400 | 10.39 | 13.57 | 18.37 | [9] |
| 56 | Corn stalk | Aqueous phase oil washed 260 | 48.12 | 5.77 | 45.83 | 0.29 | 550 | 250 | 400 | 11.25 | 12.37 | 14.95 | [9] |
| 57 | Corn stalk | Aqueous phase oil washed 290 | 49.54 | 5.62 | 44.47 | 0.38 | 550 | 250 | 400 | 6.27 | 9.71 | 19.16 | [9] |
| 58 | Corn stalk | Acetic acid washed | 45.35 | 5.91 | 48.48 | 0.27 | 550 | 250 | 400 | 11.99 | 18.08 | 13.01 | [9] |
| 59 | Corn stalk | Acetic acid washed 230 | 46.67 | 5.81 | 46.73 | 0.28 | 550 | 250 | 400 | 11.17 | 15.95 | 13.31 | [9] |
| 60 | Corn stalk | Acetic acid washed 260 | 48.47 | 5.77 | 45.46 | 0.3 | 550 | 250 | 400 | 9.15 | 15.24 | 13.22 | [9] |
| 61 | Corn stalk | Acetic acid washed 290 | 50.16 | 5.6 | 43.88 | 0.36 | 550 | 250 | 400 | 5.99 | 14.52 | 14.32 | [9] |
| 62 | Rice straw | -- | 39.2 | 4.8 | 42 | 0.7 | 550 | 250 | 300 | 25.29 | 24.05 | 20.8 | [10] |
| 63 | Rice straw | Water washed | 40.5 | 4.4 | 41.6 | 0.7 | 550 | 250 | 300 | 22.48 | 23.57 | 20.1 | [10] |
| 64 | Rice straw | HCI washed | 42.6 | 4.8 | 42.8 | 0.6 | 550 | 250 | 300 | 10.54 | 20.64 | 16.1 | [10] |
| 65 | Rice straw | Bio-oil washed | 42.4 | 4.9 | 43.7 | 0.8 | 550 | 250 | 300 | 10.05 | 18.27 | 14.97 | [10] |
| 66 | Rice straw | Water washed | 44.5 | 6.24 | 45.66 | 1.45 | 400 | 300 | 100 | 4.19 | 29.13 | 27.23 | [11] |
| 67 | Rice straw | Water washed + dry | 45.31 | 6.25 | 43.29 | 1.62 | 400 | 300 | 100 | 9.36 | 30.64 | 23.82 | [11] |
| 68 | Rice straw | Ammonium acetate | 45.29 | 6.14 | 43.61 | 1.56 | 400 | 300 | 100 | 6.74 | 26.64 | 20.88 | [11] |
| 69 | Rice straw | Dilute [hydrochloric acid](https://www.sciencedirect.com/topics/engineering/hydrochloric-acid) | 46.1 | 6.23 | 43.71 | 1.11 | 400 | 300 | 100 | 5.49 | 25.85 | 34.89 | [11] |
| 70 | Rice straw | Water washed | 44.5 | 6.24 | 45.66 | 1.45 | 500 | 300 | 100 | 5.32 | 34.71 | 26.62 | [11] |
| 71 | Rice straw | Water washed + dry | 45.31 | 6.25 | 43.29 | 1.62 | 500 | 300 | 100 | 4.81 | 27.98 | 29.87 | [11] |
| 72 | Rice straw | Ammonium acetate | 45.29 | 6.14 | 43.61 | 1.56 | 500 | 300 | 100 | 5.19 | 29.35 | 20.39 | [11] |
| 73 | Rice straw | Dilute [hydrochloric acid](https://www.sciencedirect.com/topics/engineering/hydrochloric-acid) | 46.1 | 6.23 | 43.71 | 1.11 | 500 | 300 | 100 | 5.71 | 23.05 | 39.74 | [11] |
| 74 | Rice straw | Water washed | 44.5 | 6.24 | 45.66 | 1.45 | 750 | 300 | 100 | 4.49 | 25.37 | 29.06 | [11] |
| 75 | Rice straw | Water washed + dry | 45.31 | 6.25 | 43.29 | 1.62 | 750 | 300 | 100 | 5.23 | 19.53 | 30.73 | [11] |
| 76 | Rice straw | Ammonium acetate | 45.29 | 6.14 | 43.61 | 1.56 | 750 | 300 | 100 | 6.24 | 23.49 | 27.24 | [11] |
| 77 | Rice straw | Dilute [hydrochloric acid](https://www.sciencedirect.com/topics/engineering/hydrochloric-acid) | 46.1 | 6.23 | 43.71 | 1.11 | 750 | 300 | 100 | 3.89 | 26.44 | 38.18 | [11] |
| 78 | Leucaena | -- | 45.1 | 6.4 | 48.1 | 0.4 | 900 | 150 | 50 | 17.92 | 31.42 | -- | [12] |
| 79 | Leucaena | CP | 45.1 | 6.4 | 48.1 | 0.4 | 900 | 150 | 50 | 17.87 | 31.27 | -- | [12] |
| 80 | Leucaena | AP | 46.8 | 6.4 | 46.3 | 0.5 | 900 | 150 | 50 | 14.78 | 35.45 | -- | [12] |
| 81 | Leucaena | MP10-900 | 86.6 | 1.8 | 10.7 | 0.9 | 900 | 150 | 50 | 22.1 | 30.97 | -- | [12] |
| 82 | Leucaena | MP40-900 | 86.5 | 1.8 | 10.8 | 0.9 | 900 | 150 | 50 | 21.31 | 30.99 | -- | [12] |
| 83 | Tabaco stalk | -- | 44.68 | 14.14 | 39.95 | 1.13 | 550 | 840 | 100 | 34.96 | 13.06 | -- | [13] |
| 84 | Tabaco stalk | Wet torrefaction | 63.24 | 6.63 | 27.68 | 2.39 | 550 | 840 | 100 | 4.22 | 31.43 | -- | [13] |
| 85 | Tabaco stalk | Dry torrefaction | 53.75 | 6.71 | 37.27 | 2.05 | 550 | 840 | 100 | 10.81 | 36.46 | -- | [13] |
| 86 | Tabaco stalk | CuO+ NiO+ Wet torrefaction | 68.19 | 6.23 | 22.17 | 3.28 | 550 | 840 | 100 | 24.83 | 46.19 | -- | [13] |
| 87 | Tabaco stalk | CuO+ NiO+ Dry torrefaction | 62.91 | 8.81 | 24.19 | 3.65 | 550 | 840 | 100 | 19.73 | 32.17 | -- | [13] |
| 88 | Rice straw | -- | 40.8 | 5.7 | 40.5 | 1.2 | 550 | 800 | 200 | 8.4 | 40.58 | 5.86 | [14] |
| 89 | Rice straw | Water washed | 41.1 | 5.7 | 40.8 | 1.1 | 550 | 800 | 200 | 5 | 23.07 | 3.35 | [14] |
| 90 | Rice straw | Water washed+ torrefaction 210 | 42.9 | 5.4 | 39.1 | 0.9 | 550 | 800 | 200 | 4.01 | 23.59 | 3.23 | [14] |
| 91 | Rice straw | Water washed+ torrefaction 240 | 44.8 | 5.2 | 36.3 | 0.9 | 550 | 800 | 200 | 2.82 | 24.15 | 2.87 | [14] |
| 92 | Rice straw | Water washed+ torrefaction 270 | 48.3 | 5 | 26.4 | 0.9 | 550 | 800 | 200 | 1.76 | 28.73 | 2.62 | [14] |
| 93 | Corn straw | -- | 43.7 | 5.34 | 40.43 | 2.83 | 550 | 250 | 50 | 3.15 | 26.23 | 36.93 | [15] |
| 94 | Corn straw | Atmospheric baking 180 | 44.73 | 5.21 | 40.23 | 2.09 | 550 | 250 | 50 | 2.94 | 36.11 | 24.46 | [15] |
| 95 | Corn straw | Atmospheric baking 210 | 44.95 | 5.14 | 40.12 | 2 | 550 | 250 | 50 | 2.41 | 39.41 | 24.92 | [15] |
| 96 | Corn straw | Atmospheric baking 230 | 45.25 | 5.18 | 38.22 | 2.04 | 550 | 250 | 50 | 0.61 | 40.11 | 24.72 | [15] |
| 97 | Corn straw | Atmospheric baking 250 | 45.42 | 4.89 | 36.29 | 2.26 | 550 | 250 | 50 | 0.01 | 40.35 | 30.66 | [15] |
| 98 | Corn straw | High-pressure baking 180 | 50.12 | 4.97 | 34.36 | 1.95 | 550 | 250 | 50 | 0.66 | 40.36 | 20.08 | [15] |
| 99 | Corn straw | High-pressure baking 210 | 52.14 | 4.76 | 27.69 | 2.14 | 550 | 250 | 50 | 0.48 | 41.51 | 21.82 | [15] |
| 100 | Corn straw | High-pressure baking 230 | 55 | 4.79 | 23.49 | 2.12 | 550 | 250 | 50 | 0.01 | 41.82 | 18.26 | [15] |
| 101 | Corn straw | High-pressure baking 250 | 57.37 | 4.8 | 19.97 | 2.62 | 550 | 250 | 50 | 0.01 | 51.21 | 17.93 | [15] |
| 102 | Poplar wood | -- | 47.39 | 6.32 | 46.02 | 0.12 | 550 | 187.5 | 200 | 25.32 | 26.13 | 29.79 | [16] |
| 103 | Sorghum straw | -- | 47.54 | 5.75 | 40.75 | 1.08 | 500 | 187.5 | 100 | 27.04 | 10.68 | 47.34 | [17] |
| 104 | Sorghum straw | HCl washed | 38.25 | 6.98 | 51.71 | 1.23 | 500 | 187.5 | 100 | 20.3 | 13.56 | 38.26 | [17] |
| 105 | Sorghum straw | Torrefaction 260 | 53.03 | 5.91 | 34 | 1.23 | 500 | 187.5 | 100 | 22.57 | 16.36 | 40.76 | [17] |
| 106 | Sorghum straw | HCl washed+ Torrefaction 260 | 42.43 | 6.57 | 47.26 | 1.73 | 500 | 187.5 | 100 | 18.94 | 4.77 | 44.49 | [17] |
| 107 | Fir wood | -- | 47.66 | 5.74 | 46.52 | 0.08 | 350 | 200 | 100 | 17.06 | 28.62 | 23.27 | [18] |
| 108 | Fir wood | -- | 47.66 | 5.74 | 46.52 | 0.08 | 450 | 200 | 100 | 24.59 | 37.92 | 24.51 | [18] |
| 109 | Fir wood | -- | 47.66 | 5.74 | 46.52 | 0.08 | 550 | 200 | 100 | 28.17 | 33.02 | 26.83 | [18] |
| 110 | Fir wood | -- | 47.66 | 5.74 | 46.52 | 0.08 | 650 | 200 | 100 | 29.97 | 30.78 | 24.48 | [18] |
| 111 | Fir wood | -- | 47.66 | 5.74 | 46.52 | 0.08 | 450 | 200 | 100 | 24.66 | 38.39 | 19.01 | [18] |
| 112 | Fir wood | -- | 47.66 | 5.74 | 46.52 | 0.08 | 450 | 200 | 100 | 15.07 | 38.19 | 18.93 | [18] |
| 113 | Fir wood | -- | 47.66 | 5.74 | 46.52 | 0.08 | 450 | 200 | 100 | 22.27 | 38.97 | 19.5 | [18] |
| 114 | Fir wood | -- | 47.66 | 5.74 | 46.52 | 0.08 | 450 | 200 | 50 | 23.9 | 31.51 | 21.13 | [18] |
| 115 | Fir wood | -- | 47.66 | 5.74 | 46.52 | 0.08 | 450 | 200 | 150 | 23.98 | 25.77 | 20.85 | [18] |
| 116 | Fir wood | -- | 47.66 | 5.74 | 46.52 | 0.08 | 450 | 200 | 200 | 16.57 | 32.85 | 20.03 | [18] |
| 117 | Corn straw | -- | 46.9 | 5.9 | 42.08 | 5.9 | 450 | 450 | 1000 | 52.49 | 3.36 | 13.37 | [19] |
| 118 | Rice stalk | -- | 42.22 | 5.68 | 42.28 | 5.68 | 450 | 450 | 1000 | 58.78 | 2.7 | 19.71 | [19] |
| 119 | Wheat Straw | -- | 44.31 | 5.86 | 43.27 | 5.86 | 450 | 450 | 1000 | -- | 2.6 | 18.38 | [19] |
| 120 | Wood chip | -- | 47.9 | 6.54 | 44.41 | 6.54 | 450 | 450 | 1000 | -- | 12.23 | 12.29 | [19] |
| 121 | Pinus massoniana | -- | 52.33 | 5.81 | 41.66 | 0.2 | 400 | 250 | 0 | -- | 11.73 | 11.03 | [20] |
| 122 | Pinus massoniana | -- | 52.33 | 5.81 | 41.66 | 0.2 | 500 | 250 | 0 | -- | 11.83 | 11.55 | [20] |

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