Supplementary File

**molecules-1119989**



Figure 1. Biosynthesis of plant glycosides and its regulation in monocotyledonous and dicotyledonous plants [54]



Figure 2. β-Glucans extracted a) from barley (β-(1,3-1,4)-d-glucan) and b) from yeast (β-(1,3-1,6)- d-glucan)

Table 1.Oil (percent of dry weight seed) and lipid content (percent of total lipid) in wild and cultivated oats samples*a*

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Wild / Cultivated | Oil content | Pl | 1,2-DAG | 1,3-DAG | FFA | Unknown lipids | TAG1 | TAG2 | TAG |
| Wild | 7.8±0.2 | 15.4±0.6 | 1.3±0.1 | 1.9±0.1 | 1.5±0.2 | 1.0±0.1 | 1.1±0.1 | 0.9±0.1 | 77.1±0.9 |
| Cultivated | 5.9±0.2 | 16.0±0.7 | 1.1±0.1 | 2.3±0.1 | 2.5±0.1 | 1.4±0.1 | 1.4±0.1 | 1.1±0.0 | 74.2±1.0 |
| *F* value | 47.5\*\*\* | 0.4 NS | 1.3 NS | 10.6\*\* | 10.2\*\* | 4.2\* | 13.2\*\*\* | 11.0\*\* | 4.3\* |

*a*Abbreviations: PL, polar lipids; 1,2-DAG, 1,2-diacylglycerol; 1,3-DAG, 1,3-diacylglycerol; FFA, free FAs. *F* values are from one-way ANOVA. \*\*\*Significant at *p* < 0.001; \*\*significant at *p* < 0.01; and \*significant at *p* < 0.05

Table 2. Content of avenanthramides in oat cultivars [94]

|  |  |  |  |
| --- | --- | --- | --- |
| № VIR catalogue | Name of cultivars | Origin | Content of avenanthramides, mg/kg |
| I | II | III | Average |
| 14787 | Privet | RF, Moscow reg. | 23,46 | 36,92 | 30,39 | 30,26 |
| 15277 | Bulanyi | RF, Moscow reg. | 8,28 | 13,06 | 7,31 | 9,55 |
| 15187 | Eklips | RF, Kirov reg. | 92,60 | 121,67 | 144,32 | 119,53 |
| 14648 | Argamak | RF, Kirov reg. | 5,38 | 6,60 | 6,11 | 6,03 |
| 14857 | Krechet | RF, Kirov reg. | 20,27 | 19,91 | 29,90 | 23,36 |
| 15068 | Konkur | RF, Ul’yanovsk reg. | 54,32 | 53,76 | 50,49 | 52,86 |
| 14960 | Vyatskii\* | RF, Kirov reg. | 214,10 | 169,50 | 261,20 | **214,93** |
| 15275 | Persheron\* | RF, Kirov reg. | 62,35 | 68,82 | 54,41 | 61,86 |
| 15067 | Golets\* | RF, Krasnoyask reg. | 77,62 | 82,14 | 79,24 | 79,67 |
| 15067 | Levsha\* | RF, Kemerovo reg. | 59,81 | 72,77 | 67,65 | 66,74 |
| 15115 | Aldan\* | RF, Kemerovo reg. | 60,54 | 83,74 | 56,44 | 66,91 |
| 15116 | Murom\* | RF, Kemerovo reg. | 138,98 | 170,54 | 200,71 | **170,08** |
| 15117 | Pomor\* | RF, Kemerovo reg. | 43,40 | 46,82 | 46,00 | 45,40 |
| 15183 | Taidon\* | RF, Kemerovo reg. | 140,20 | 165,76 | 122,96 | **142,97** |
| 14851 | Numbat\* | Australia | 358,87 | 460,00 | 403,78 | **407,55** |

\* - naked cultivars

Table 3. Content of tocopherols and sterols in oat accessions

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| № VIR catalogue | Name of cultivars | Origin | Content of tocopherols, мg% | Content of sterols, % |
| 5184 | Local | Spain  | 283 | 1,18 |
| 11840 | Borrus | Germany | 184 | 1,00 |
| 14648 | Argamak | RF, Kirov reg. | 189 | 0,64 |
| 13780 | Skakun | RF, Moscow reg. | 180 | 0,64 |
| 13918 | Kirovets | RF, Kirov reg. | 227 | 0,72 |
| 13957 | Gunter | RF, Kirov reg. | 236 | 0,67 |
| 14373 | Fakir | RF, Kirov reg. | 235 | 0,81 |
| 14781 | Faust | RF, Kirov reg. | 195 | 0,77 |
| 14857 | Krechet | RF, Kirov reg. | 149 | 0,61 |
| 15177 | Derbi | RF, Ulaynovsk reg. | 169 | 0,62 |
| 15180 | Piruet | RF, Ulaynovsk reg. | 167 | 0,64 |
| 1931 | Local\* | China | 223 | 0,74 |
| 2472 | Local\* | Mongolia | 415 | 0,97 |
| 8317 | Local\* | China | 106 | 0,85 |

\* - naked cultivars

Table 4. The biochemical characteristics of caryopsis of wild and cultivated oats with different levels of ploidy (mg / 100 g) [97].

|  |  |  |
| --- | --- | --- |
| **Name** | **Wild oats** | **Cultivated oats** |
| **Diploids** | **Tetraploids** | **Hexaploids** | **Hexaploids** |
| Amino acids | 65,41 ± 0,03 | 37,96 ± 0,02 | 27,67 ± 0,01 | 75,80 ± 0,04 |
| Fatty acid | 755,30 ± 0,08 | 787,30 ± 0,08 | 950,77 ± 0,10 | 494,00 ± 0,10 |
| Sterols | 11,49 ± 0,00 | 22,29 ± 0,00 | 23,20 ± 0,00 | 16,40 ± 0,01 |
| Organic acids | 117,56 ± 0,06 | 121,92 ± 0,06 | 101,35 ± 0,05 | 49,90 ± 0,02 |
| Polyhydric alcohols | 352,26 ± 0,11 | 236,93 ± 0,07 | 295,76 ± 0,09 | 189,90 ± 0,09 |
| Monosaccharides | 1170,91 ± 0,05 | 886,79 ± 0,04 | 1058,88 ± 0,04 | 901,50 ± 0,09 |
| Disaccharide | 3651,68 ± 0,11 | 3894,83 ± 0,12 | 1280,41 ± 0,04 | 2361,40 ± 0,09 |
| Total sugars | 4980,89 ± 0,10 | 4781,62 ± 0,10 | 2339,28 ± 0,05 | 3262,90 ± 0,09 |