

**Table AI –**

The change in mass of inhibitors with pervaporation detoxification or control treatment. The inhibitors' concentration before and after pervaporation and their concentration in the permeate is also given.

|                  |                                | Pervapor-<br>ation<br>retentate<br>mass% of<br>initial | Mass%<br>of initial<br>in control | Starting<br>Concen-<br>tration<br>(µg/mL) | End<br>retentate<br>Concen-<br>tration<br>(µg/mL) | Mean Permeate<br>Concentration |
|------------------|--------------------------------|--------------------------------------------------------|-----------------------------------|-------------------------------------------|---------------------------------------------------|--------------------------------|
| Measured By HPLC | Glucose                        | 100                                                    | 100                               | 19100                                     | 28200                                             | -                              |
|                  | Xylose                         | 98                                                     | 97                                | 45300                                     | 65200                                             | -                              |
|                  | Arabinose                      | 92                                                     | 96                                | 5140                                      | 7050                                              | -                              |
|                  | HMF                            | 90                                                     | 93                                | 288                                       | 390                                               | -                              |
|                  | Furfural                       | 0                                                      | 88                                | 802                                       | -                                                 | 700                            |
|                  | Glycerol                       |                                                        |                                   | 0                                         | 230                                               | -                              |
|                  | Formic                         | 46                                                     | 47                                | 2470                                      | 1740                                              | 328                            |
|                  | Acetic                         | 73                                                     | 106                               | 8650                                      | 10150                                             | 7787                           |
|                  | Oxalic Acid                    | 99                                                     | 133                               | 92                                        | 136                                               | -                              |
| Measured by LCMS | cis-Aconitic Acid              | 128                                                    | 192                               | 9                                         | 20                                                | -                              |
|                  | Maleic Acid                    | 236                                                    | 575                               | 5                                         | 19                                                | 0.71                           |
|                  | Glucuronic Acid                | 65                                                     | 65                                | 236                                       | 227                                               | -                              |
|                  | Citric Acid                    | 72                                                     | 78                                | 103                                       | 107                                               | -                              |
|                  | Galacturonic Acid              | 86                                                     | 87                                | 568                                       | 628                                               | <                              |
|                  | Gluconic Acid                  | 215                                                    | 216                               | 154                                       | 447                                               | <                              |
|                  | Pyruvic Acid                   | 122                                                    | 140                               | 104                                       | 190                                               | -                              |
|                  | Tricarballic Acid              | 0                                                      | 20                                | 33                                        | -                                                 | -                              |
|                  | Glyoxylic Acid                 |                                                        |                                   | 298                                       | >                                                 | -                              |
|                  | Malic Acid                     | 150                                                    | 158                               | 311                                       | 541                                               | 1.5                            |
|                  | Malonic Acid                   | 24                                                     | 41                                | 18                                        | 6                                                 | -                              |
|                  | trans-Aconitic Acid            | 347                                                    | 128                               | 3                                         | 13                                                | -                              |
|                  | Methylmalonic Acid             | 84                                                     | 247                               | 4                                         | 5                                                 | 2.0                            |
|                  | Succinic Acid                  | 257                                                    | 235                               | 15                                        | 50                                                | 0.4                            |
|                  | Glycolic Acid                  | 397                                                    | 368                               | 43                                        | 239                                               | <                              |
|                  | Lactic Acid                    | 105                                                    | 106                               | 31                                        | 53                                                | <                              |
|                  | Itaconic Acid                  | 81                                                     | 104                               | 5                                         | 7                                                 | 1.7                            |
|                  | Glutaric Acid                  |                                                        |                                   | -                                         | -                                                 | -                              |
|                  | Fumaric Acid                   | 81                                                     | 101                               | 4                                         | 4                                                 | -                              |
|                  | 2-Hydroxy-2-methylbutyric Acid |                                                        |                                   | -                                         | -                                                 | -                              |
|                  | Adipic Acid                    |                                                        |                                   | -                                         | -                                                 | -                              |
|                  | Levulinic Acid                 | 114                                                    | 105                               | 996                                       | 1557                                              | <                              |
|                  | 2-Furoic Acid                  | 92                                                     | 130                               | 11                                        | 15                                                | <                              |
| Measured by GCMS | 2,3-Dihydroxybenzoic Acid      |                                                        |                                   | 1                                         | 1                                                 | -                              |
|                  | 2,5-Dihydroxybenzoic Acid      |                                                        |                                   | 2                                         | 3                                                 | +                              |
|                  | 2,6-Dimethoxyphenol            |                                                        |                                   | 1                                         | +                                                 | +                              |
|                  | 2-hydroxybenzoic acid          |                                                        |                                   | +                                         | +                                                 | -                              |
|                  | 2-Hydroxybenzyl Alcohol        |                                                        |                                   | +                                         | +                                                 | +                              |
|                  | 3,4-Dihydroxybenzaldehyde      | 255                                                    | 243                               | 2                                         | 6                                                 | +                              |
|                  | 3,4-Dihydroxybenzoic Acid      | 170                                                    | 143                               | 4                                         | 9                                                 | +                              |
|                  | 3-Hydroxybenzoic Acid          |                                                        |                                   | +                                         | +                                                 | -                              |
|                  | 3-Methylcatechol               |                                                        |                                   | +                                         | +                                                 | -                              |
|                  | 4-Hydroxybenzaldehyde          | 133                                                    | 128                               | 21                                        | 42                                                | -                              |
|                  | 4-Hydroxybenzoic Acid          | 118                                                    | 109                               | 7                                         | 12                                                | +                              |
|                  | 4-Hydroxycoumarin              | 60                                                     | 94                                | 2                                         | 2                                                 | -                              |
|                  | 4-Hydroxymandelic Acid         | 80                                                     | 82                                | 4                                         | 6                                                 | +                              |
|                  | 4-Methylcatechol               |                                                        |                                   | +                                         | +                                                 | -                              |
|                  | 4-OH-3-OCH3-Mandelic Acid      | 126                                                    | 108                               | 2                                         | 4                                                 | -                              |
|                  | Acetosyringone                 | 103                                                    | 101                               | 1                                         | 2                                                 | -                              |
|                  | Acetovanillone                 | 107                                                    | 121                               | 3                                         | 5                                                 | +                              |
|                  | Benzoic Acid                   |                                                        |                                   | +                                         | +                                                 | +                              |
|                  | Benzyl Alcohol                 |                                                        |                                   | +                                         | +                                                 | -                              |
|                  | Caffeic Acid                   | 166                                                    | 152                               | 4                                         | 9                                                 | -                              |
|                  | Catechol                       |                                                        |                                   | +                                         | +                                                 | -                              |

| GC/MS                             | GC/MS                                | GC/MS | GC/MS | GC/MS | GC/MS |
|-----------------------------------|--------------------------------------|-------|-------|-------|-------|
| Coniferyl Alcohol                 | 48                                   | 4     | 10    | 7     | -     |
| Eugenol                           |                                      |       | +     | +     | +     |
| Ferulic Acid                      | 100                                  | 67    | 94    | 140   | 2.0   |
| Gallic Acid                       |                                      |       | +     | +     | -     |
| Guaiacol                          |                                      |       | 2     | +     | +     |
| Homovanillic                      | 155                                  | 133   | 3     | 7     | -     |
| Homovanillyl Alcohol              |                                      |       | +     | +     | -     |
| Hydroquinone                      | 99                                   | 67    | 9     | 13    | -     |
| iso-Eugenol                       |                                      |       | +     | +     | -     |
| iso-Ferulic Acid                  |                                      |       | +     | +     | -     |
| p-Coumaric                        | 108                                  | 77    | 61    | 143   | 1.3   |
| Resorcinol                        |                                      |       | -     | -     | -     |
| Salicylaldehyde                   |                                      |       | +     | +     | +     |
| Sinapaldehyde                     | 60                                   | 54    | 5     | 4     | -     |
| Sinapic Acid                      |                                      |       | 1     | 1     | -     |
| Syringaldehyde                    | 126                                  | 131   | 22    | 41    | +     |
| Syringic Acid                     | 125                                  | 117   | 14    | 25    | -     |
| Vanillic Acid                     | 130                                  | 123   | 25    | 47    | +     |
| Vanillin                          | 144                                  | 164   | 33    | 70    | 7.0   |
| Vanillyl Alcohol                  |                                      |       | +     | 3     | -     |
| Cis p-Coumaric                    | 89                                   | 84    | 3     | 4     | -     |
| Cis Ferulic Acid                  | 74                                   | 76    | 3     | 4     | -     |
| 1-Guaiacylethanol                 |                                      |       | +     | 4     | 2.8   |
| 2-Guaiacylactaldehyde             | 16                                   | 18    | 22    | 5     | -     |
| 2-OH-1-Guaiacylpropanone          | 90                                   | 96    | 11    | 14    | -     |
| 2-Syringylactaldehyde             | 20                                   | 14    | 8     | 2     | -     |
| 3-Guaiacylacetol                  | 46                                   | 35    | 151   | 108   | -     |
| 3-Guaiacylpropanol                | 100                                  | 98    | 9     | 13    | -     |
| 3-Syringylacetol                  | 31                                   | 19    | 121   | 53    | -     |
| 4-(2-OH-Ethyl)phenol              |                                      |       | +     | 4     | +     |
| Guaiacylacetone                   | 67                                   | 72    | 10    | 10    | +     |
| 1-(4-OH-Phenyl)-acetol            | 91                                   | 86    | 8     | 11    | -     |
| 1-Syringylacetol                  | 99                                   | 88    | 23    | 33    | 4.0   |
| 1-Guaiacylacetol                  | 97                                   | 86    | 69    | 96    | 2.3   |
| 1-Guaiacylpropan-1,2-dione        | 77                                   | 100   | 26    | 29    | 2.0   |
| 1-Syringylpropan-1,2-dione        | 96                                   | 101   | 12    | 16    | -     |
| 2-OH-1-(4-OH-Phenyl)-propan-1-one | 89                                   | 90    | 3     | 4     | 2.0   |
| 2-OH-1-Guaiacylethanone           | 99                                   | 93    | 32    | 45    | -     |
| 2-OH-1-Syringylethanone           | 86                                   | 82    | 16    | 20    | -     |
| 2-OH-1-Syringylpropanone          | 94                                   | 91    | 4     | 5     | -     |
| 3-(4-OH-Phenyl)-acetol            | 63                                   | 52    | 3     | 15    | -     |
| 3-Guaiacylpropanoic Acid          | 87                                   | 91    | 3     | 4     | -     |
| 3-OH-1-Guaiacylpropanone          | 83                                   | 93    | 2     | 3     | -     |
| 3-OH-1-Syringylpropanone          | 86                                   | 89    | 3     | 3     | -     |
| -                                 | not detected                         |       |       |       |       |
| +                                 | present but concentration < 1 µg/mL  |       |       |       |       |
| >                                 | present but concentration >500 µg/mL |       |       |       |       |
| <                                 | present but concentration < .1 µg/mL |       |       |       |       |