TABLE III. The "goodness of fit" tests for the developed ANN model

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variable | χ2 | RMSE | MBE | MPE | *R*2 | Skew | Kurt | Mean | SD | Var |
| Biomass production | 0.088 | 0.292 | 0.009 | 11.172 | 0.889 | -0.225 | 4.022 | 0.009 | 0.293 | 0.086 |
| N2 gas production | 0.004 | 0.062 | 0.001 | 0.454 | 0.981 | -0.034 | 63.966 | 0.001 | 0.062 | 0.004 |
| Nitrate concentration | 1060.232 | 32.056 | 0.999 | 11.394 | 0.945 | -1.030 | 4.409 | 0.999 | 32.165 | 1034.571 |
| Nitrite concentration | 39.486 | 6.186 | 0.066 | 46.760 | 0.959 | -2.225 | 15.127 | 0.066 | 6.210 | 38.563 |
| Nitrite formation | 0.001 | 0.031 | 0.003 | 0.649 | 0.995 | 0.231 | 4.689 | 0.003 | 0.031 | 0.001 |
| Ammonia formation | 0.001 | 0.022 | 0.001 | 0.159 | 0.980 | 0.139 | 5.105 | 0.001 | 0.022 | 0.001 |

χ2 - reduced chi-square; MBE - mean bias error; RMSE - root mean square error; MPE - mean percentage error; R2 - coefficient of determination; Skew – skewness; Kurt – kurtosis; Mean – mean of the residuals; SD – standard deviation of the residuals; Var – variance of the residuals