**Table S1.** The effect of tulsi leaf extracts on the induction of regenerants, including organogenic shoots and somatic embryo-like structures in *N. tabacum* leaf explants. Values represent means ± SEM, and different letters within the same column represent significant differences between treatments using the Tukey-HSD test ($\alpha$ = 0.05). P-values relative to the control treatment to determine if differences between the extract and control treatments were statistically significant.

| Treatment | Average number of regenerants greater than 1 cm per explant | Adj.p (relative to control) |
|---|---|---|
| Control | 6.14 ± 0.5 c | |
| 1% Tulsi leaf extract | 9.60 ± 0.5 bc | <0.0001 |
| 10% Tulsi leaf extract | 12.58 ± 0.5 ba | <0.0001 |
| 20% Tulsi leaf extract | 13.07 ± 0.5 a | <0.0001 |

**Table S2.** Adj P-values of various control and tulsi leaf extract treatments compared at day 10 and 25 *in vitro*.

| Treatment_day | Adj.p values (Fresh weight concentration) | | | | | | |
|---|---|---|---|---|---|---|---|
| | TRP | TRM | 5-HTP | SER | NAS | MEL | 2-OHMEL |
| C_10 vs 20% hb_10 | 0.9477 | <.0001 | 0.7208 | 0.0527 | <.0001 | 0.9942 | 0.004 |
| C_25 vs 20% hb_25 | 1.0000 | 0.1535 | 0.1414 | 0.9717 | 0.2209 | 0.9986 | 0.6689 |

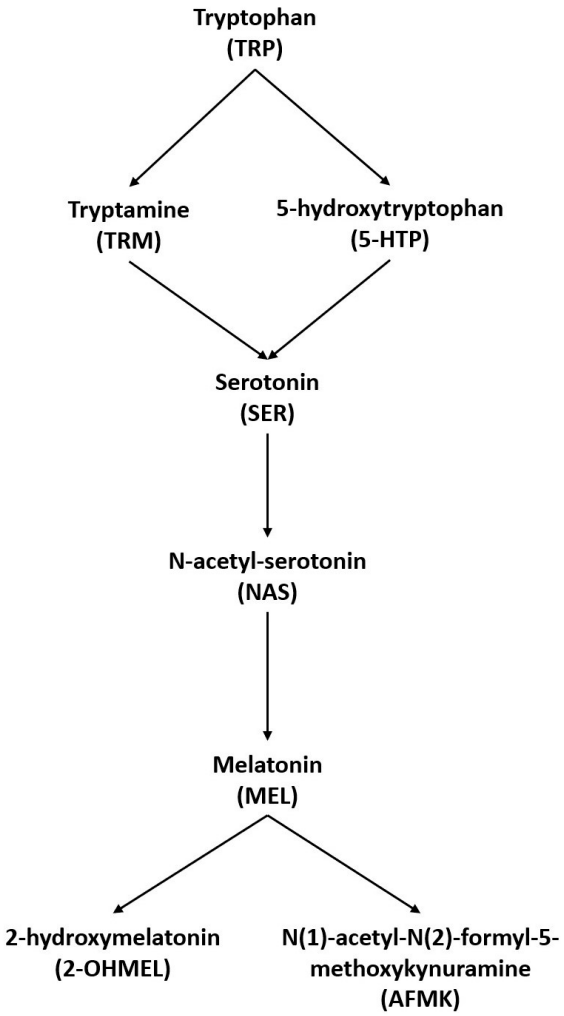


**Figure S1.** Schematic representation of the indoleamine pathway beginning with the precursor molecule tryptophan and ultimately converting into the downstream molecules 2-hydroxymelatonin and N(1)-acetyl-N(2)-formyl-5-methoxykynuramine [30,57].