BACKGROUND OF THE INVENTION

Stevia rebaudiana is a shrubby perennial, growing up to 65-100 cm tall. It is a member of the Compositae family and originates from Paraguay. This species is grown commercially in Brazil, China, Paraguay, the United States, and other countries. The plants are grown so that sweet glycosides present in the leaves can be extracted for use as sweeteners. The sweetest of these glycosides is rebaudioside A (Reb A).

The development of new varieties of Stevia rebaudiana with high levels of Reb A is desirable. The new Stevia variety ‘T60’ described herein is such a variety. The new ‘T60’ variety was asexually reproduced from callus through an in vitro tissue culture technique performed in Woodland, Calif.

BRIEF SUMMARY OF THE INVENTION

The major characteristics exhibited by the new Stevia variety ‘T60’ that distinguish it from other varieties include a high concentration of total glycoside and high concentration of Reb A in the leaves from total glycoside. Other major characteristics that also distinguish the new Stevia variety ‘T60’ from other varieties include a tall, bushy stature that is resistant to high winds; spathulate-oblanceolate to ovate leaves; high yield foliage production. For example, ‘T60’ produced over 3000 lbs/acre in one harvest. Still other major characteristics that distinguish the new Stevia variety ‘T60’ from other varieties include being virus free, resistant to Fusarium ssp., and Sclerotinia ssp., drought resistant, and resistant to compact porous soils. Another major characteristic exhibited by the new Stevia variety ‘T60’ that distinguishes it from other varieties is an average biological cycle of 90-115 days between 20-27 N.S Latt, giving the option of secondary harvest per annual cycle.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 depicts a color photograph of a fully mature ‘T60’ stevia plant near the end of the growing season.
collected from plantlets of each of the four ‘Criola’ lines. The
anthers were then plated in vitro to derive haploid lines. The
in vitro tissue culture medium induced callus formation from the
plated anthers. Callus formation was observed in October
of year 2. Haploid lines were created from the formed callus.
The process of creating elite Stevia lines required that the
chromosome count of each haploid line be doubled, since
haploid lines cannot survive as plants. The full complement of
chromosomes was regenerated by using successive colchic-
cine treatments of 20 ppm, 40 ppm, and 60 ppm on both the
callus and the shoots regenerated from the callus.

Every green callus that formed a diploid plantlet was trans-
ferred into a hormone-free medium for multiplication. Multi-
plication of the diploid plantlets resulted in the creation of a
unique line of plants with unique characteristics distinguish-
able from the original four ‘Criola’ lines. These new Stevia
lines were named T-lines. The T-lines were grown out in 2
inch plugs, then transferred to 4 inch pots, and then planted in
the field in Woodland, Calif. The selected T-lines were shown
to be superior to the parental stock. The selected T-lines either
had higher total levels of glycoside, or higher levels of Reb A.
Based on these characteristics, all callus material that gave
rise to the new T-lines was collected. Genetically unique lines
were developed from this callus material.

To test for percentage of Reb A production, the new T-lines
were planted from tissue culture into 2 inch plugs and then
transplanted into 4 inch pots. By the age of six weeks, this
second generation of T-line plants had grown to about 10
inches in height in the pots. At six weeks the T-line plants
were sampled to obtain HPLC data on the percentage of Reb
A production. This was done even though the percentage of
glycosides found in the leaf material of the new T-lines plants
would not be as high as expected levels in mature plants.
The levels of Reb A in these new T-line Stevia plants were as high
as 89.2% of total glycoside levels. After the HPLC data was
obtained, the T-line Stevia plants were planted in the field in
Woodland, Calif., and grown to maturity. At maturity, the
production rates of glycosides were evaluated.

All new T-lines were grown out in greenhouses in Wood-
land, Calif. for planting in the field, to allow for further testing
and breeding for seed.

Of the new Stevia T-lines, three varieties were selected that
produced high levels of Reb A. The production of high levels
of Reb A in these Stevia T-lines will allow large amounts of
Reb A to be harvested. The present Stevia variety ‘T60’ is one
of the three selected T-lines developed by the methods
described herein. The Stevia variety ‘T60’ was derived from
the T-line ‘T6’. The ‘T6’ line was derived from ‘Criola’ line
‘IAN-135’.

Table 2 depicts HPLC data on the percentage of glycoside
and Reb A for samples of the Stevia variety ‘T60’.

<p>| Samples of mature | Total | Total | Reb A | Reb A to |</p>
<table>
<thead>
<tr>
<th>T60 Stevia plants</th>
<th>Glycoside</th>
<th></th>
<th>Glycoside</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>09-01-44</td>
<td>15.18</td>
<td>12.58</td>
<td>82.8%</td>
<td></td>
</tr>
<tr>
<td>09-01-54</td>
<td>16.96</td>
<td>14.39</td>
<td>84.8%</td>
<td></td>
</tr>
<tr>
<td>09-01-65</td>
<td>14.58</td>
<td>12.00</td>
<td>82.3%</td>
<td></td>
</tr>
<tr>
<td>09-01-66</td>
<td>15.05</td>
<td>12.46</td>
<td>82.8%</td>
<td></td>
</tr>
</tbody>
</table>

The HPLC data shows that the average percentage of Reb
A to Glycoside in Stevia variety ‘T60’ was 83.2%. This is an
increase of at least 11.5% over the ‘Criola’ lines. The ‘T60’
variety also showed an increase of 34.5% over ‘IAN-135’,
from which ‘T60’ is derived.

**DETAILLED BOTANICAL DESCRIPTION**

The Stevia variety ‘T60’ is a perennial herb with filiform
deep roots. The ‘T60’ variety has a long stem that is on
average 65-100 cm tall, erect, hairy, and slender. The stem
easily produces secondary shoots (suckers) from its base, dies
off and is renewed annually. The stem produces an average of
5 to 10 suckers. The stem also produces numerous lateral
branches, thus, forming a more or less roundish and dense
crown. The ‘T60’ variety also has an average biological cycle
of 90-115 days. The variety goes dormant and is renewed
annually.

The stem of the ‘T60’ variety produces an average of 3 to 7
lateral branches. The average length of each lateral branch
ranges from 30 to 40 cm. The average diameter of the lateral
branches ranges from 5 to 7 mm. The lateral branches are light
green in color (RHS 142A). The lateral branches form a
roundish and dense crown.

The crushed leaves exude a strong odor, and all the green
parts of the plant taste sweet. The leaves are simple, oppo-
site and sub sessile. The internodes have an average length of 2
to 4 cm. The blades are sub coriaceous, very variable in shape
and size, and ovate. The blades have an average length of 2 to
3 cm and an average width of 0.6 to 1 cm. The blades are apex
obtuse, base cuneate, margins entire serate on the upper half,
three primary veins arise from the leaf base raised and promi-
nent on the blade’s lower side, immersed on the upper side,
and secondary venation reticulate.

The leaf blades of actively growing plants of the ‘T60’
variety are light green in color (RHS 142A). In the dry state,
the leaf blades are olive-green to brownish green in color
(RHS 147A-147B), and usually darker on the upper side.
Both surfaces are scabrous with black glandular dots on
the lower side, the leaves sub sessile or the petiole to 3-4 mm
long. The capitula are arranged into loose, panicle corym-
bose inflorescences at the terminal ends of the branches, and
have a peduncle that is on average 1-4 cm long, and very
slender. Pedicels of each capitulum are slender and on aver-
age are 1-4 mm long, bracts are linear-lanceolate, and on
average are 1-2 mm long. Each capitulum is enveloped by an
involucr, and the lower half has a light green color (RHS
142A), and the upper half has a yellowish (RHS 142C) color.
The stems at maturity are brown-reddish in color (RHS 35A-
35B).

The Stevia variety ‘T60’ has 5 phyllaries that are finely
hairy, green (RHS 129B) when fresh, linear to subulate, 4-5
mm long, and acute to rounded at apex. Each capitulum is
made up to 5 disk florets greenish white (RHS 155C). The
seeds are achenes bearing numerous, equally long pappus
awn.

The Stevia variety ‘T60’ expresses high concentrations of
total glycosides, with a total of rebaudioside A concentration
of greater than 80%. The Stevia variety ‘T60’ has an average
biological cycle of 90-115 days.

We claim:

1. A novel and distinct variety of Stevia plant named ‘T60’
having the characteristics described and illustrated herein.

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