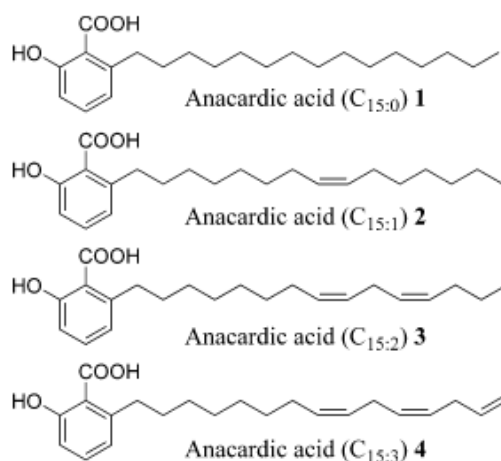


APPENDIX B

Sample calculations

The number of moles of calcium anacardate obtained from each experiment was linked to four resulting acid molecules assuming complete substitution of hydrogen over calcium atoms.



Where number 1 is saturated form of anacardic acid (MW= 348 gram mole)
 number 2 is monoene form of anacardic acid (MW= 346 gram mole)
 number 3 is diene form of anacardic acid (MW= 344 gram mole)
 number 4 is triene form of anacardic acid (MW= 342 gram mole)

$$\text{Ene mix form of anacardic acid} = 0.25 \times \frac{\text{Weight of calcium anacardate}}{\text{MW of calcium anacardate}} \left\{ \begin{array}{l} \text{MW of saturated form} \\ + \text{MW of monoene form} \\ + \text{MW of diene form} \\ + \text{MW of triene form} \end{array} \right\}$$

$$\% \text{ yield of anacardic acid} = \frac{\text{Ene mix form of anacardic acid}}{\text{weight of cashew nut shell}} \times 100 \%$$

N-hexane-to-CNS solvent ratio (80ml: 10 g) at 30 °C had calcium anacardate 4.93 gram.

$$\begin{aligned} \text{Ene mix form of anacardic acid} &= 0.25 \times \frac{4.93}{387} \times (348 + 346 + 344 + 342) \\ &= 4.39 \text{ gram} \end{aligned}$$

$$\% \text{ yield of anacardic acid} = \frac{4.39}{10} \times 100 = 43.9 \%$$