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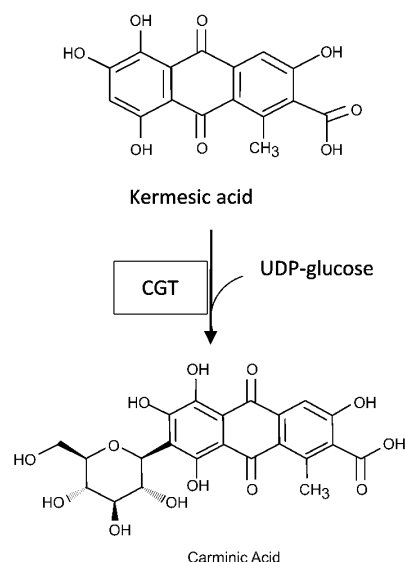
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(54) Title: CELL-FREE PRODUCTION OF CARMINIC ACID

FIG. 1



(57) Abstract: The invention is related to materials and methods for production of carminic acid from substrates. The invention provides methods and materials for cell-free bioproduction of carminic acid.

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