

# [Photosynthesis pathway](https://assignbuster.com/photosynthesis-pathway/)

## C4 Photosynthesis Pathway

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| Species  | Photosynthesis pathway  | Mla citations  |
| Abutilon fruticosum Guill. & Perr  | 4C  | (Hatch 82)  |
| Abutilon muticum (Del.) Webb  | 4C  | (Hatch 82)  |
| Abutilon pannosum (G. Forst.) Schltdl  | 4C  | (Hatch 82)  |
| Acacia abyssinica Hochst.  | 4C  | (Hatch 82)  |
| Acacia ehrenbergiana (Forssk.) Hayne  | 3C  | (Laetsch 156)  |
| Acacia elatior Brenan  | 3C  | (Laetsch 156)  |
| Acacia hamulosa Benth.  | 3C  | (Laetsch 156)  |
| Acacia raddiana Savi  | 3C  | (Laetsch 156)  |
| Acacia seyal Del  | 3C  | (Laetsch 156)  |
| Achillea falcate L.  | 4C  | (Hatch 82)  |
| Achyranthes aspera L  | 4C  | (Hatch 82)  |
| Aeluropus massuensia L.  | MAC  | (Laetsch 156)  |
| Amaranthus albus L.  | 4C  | (Hatch 82)  |
| Amaranthus hybridus L  | 4C  | (Hatch 82)  |
| Ammannia baccifera L  | 4C  | (Hatch 82)  |
| Anabasis setifera Moq.  | 3C  | (Laetsch 156)  |
| Anastatica hierochuntica L.  | MAC  | (Laetsch 156)  |
| Anchusa milleris Spreng.  | 4C  | (Hatch 82)  |
| Andrachne aspera Spreng.  | 3C  | (Laetsch 156)  |
| Argemone ochroleuca Sweet  | 3C  | (Laetsch 156)  |
| Aristida adscensionis L.  | 3C  | (Laetsch 156)  |
| Aristolochia bracteolata Lam  | 3C  | (Laetsch 156)  |
| Arnebia decumbens (Vent.) Coss.&Kralik  | 3C  | (Laetsch 156)  |
| Arnebia hispidissima (Lehm.) DC  | 3C  | (Laetsch 156)  |
| Asphodelus tenuifolius (Cav.) Baker  | 3C  | (Laetsch 156)  |
| Asteriscus hierochunticus (Michon) Wiklund  | 3C  | (Laetsch 156)  |
| Astragalus annularis Forssk.  | 3C  | (Laetsch 156)  |
| Astragalus corrugates Bertol  | 3C  | (Laetsch 156)  |
| Astragalus tribuloides Delile  | 3C  | (Laetsch 156)  |
| Astragalus vogelii (Webb) Bornm.  | 3C  | (Laetsch 156)  |
| Avena fatua  | 3C  | (Laetsch 156)  |
| Blepharis attenuate Napper  | MAC  | (Laetsch 156)  |
| Boerhavia diffusa L  | 4C  | (Hatch 82)  |
| Boerhavia repens L.  | 4C  | (Hatch 82)  |
| Brachiaria eruciformis (Sm.) Griseb.  | 3C  | (Hatch 82)  |
| Brachiaria leersioides (Hochst.) stapf  | 3C  | (Hatch 82)  |
| Brachypodium distachyum (L.) P. Beauv.  | 3C  | (Hatch 82)  |
| Cadaba farinosa Frossk  | 4C  | (Hatch 82)  |
| Cadaba glandulosa Frossk.  | 3C  | (Hatch 82)  |
| Capparis cartilaginea Decne  | 4C  | (Hatch 82)  |
| Capparis decidua (Forssk.) Edgew.  | 3C  | (Hatch 82)  |
| Capparis spinosa L.  | 3C  | (Hatch 82)  |
| Capsella pursa pastoris (L.) Medik  | 3C  | (Hatch 82)  |
| Caralluma acutangula (Decne.) N. E. Br  | MAC  | (Laetsch 156)  |
| Caralluma russeliana (Courb. ex Brongn.) Cufod.  | 3C  | (Laetsch 156)  |
| Cenchrus ciliaris L.  | 3C  | (Laetsch 156)  |
| Cenchrus pennisetiformis Hochst. & Steud.  | 3C  | (Laetsch 156)  |
| Chrozophora brocchiana Vis  | 3C  | (Laetsch 156)  |
| Chrozophora oblongifolia (Delile) Spreng.  | 3C  | (Laetsch 156)  |
| Chrozophora plicata (Vahl.) Spreng  | 3C  | (Laetsch 156)  |
| Cissus quadrangularis L  | 3C  | (Laetsch 156)  |
| Cleome brachycarpa DC  | 3C  | (Laetsch 156)  |
| Cleome chrysantha Decne.  | 3C  | (Laetsch 156)  |
| Cleome droserifolia (Forssk.) Delile  | 3C  | (Laetsch 156)  |
| Cleome paradoxa R. Br.  | 3C  | (Laetsch 156)  |
|  |  | (Laetsch 156)  |
| Cleome scaposa DC  | 3C  | (Laetsch 156)  |
| Cocculus pendulus (J. R.&G. Forst.) Diels  | 3C  | (Laetsch 156)  |
| Cometes surattensis L  | 3C  | (Laetsch 156)  |
| Commicarpus boissieri (Heimerl) Cufod  | 3C  | (Laetsch 156)  |
| Commicarpus helenae (J. A. Schultes) Meikle  | 3C  | (Laetsch 156)  |
| Commicarpus plumbagineus (Car.) Standley  | 3C  | (Laetsch 156)  |
| Commiphora kataf (Forssk.)Engl  | 3C  | (Laetsch 156)  |
| Convolvulus asyrensis Kotchy  | 4C  | (Hatch 82)  |
| Convolvulus cephalopodus Alfarhan  | 4C  | (Hatch 82)  |
| Convolvulus deserti Hochst. & Steud  | 3C  | (Hatch 82)  |
| Convolvulus Fatemensis Kunze  | 4C  | (Hatch 82)  |
| Convolvulus glomeratus Choisy  | 3C  | (Hatch 82)  |
| Convolvulus hystrix Vahl.  | 4C  | (Hatch 82)  |
| Convolvulus spicatus Hallier f.  | 4C  | (Hatch 82)  |
| Conyza bonariensis (L.) Cronquist  | 3C  | (Laetsch 156)  |
| Corchorus antichorus (L.) Raeusch.  | 3C  | (Laetsch 156)  |
| Corchorus depressus (L.) Stocks  | MAC  | (Laetsch 156)  |
| Corchorus olitorius L.  | 3C  | (Laetsch 156)  |
| Corchorus trilocularis L.  | 3C  | (Laetsch 156)  |
| Cressa cretica L  | 4C  | (Hatch 82)  |
| Crotalaria microphylla Vahl  | 4C  | (Hatch 82)  |
| Crotalaria senegalense (Pers.) DC.  | 4C  | (Hatch 82)  |
| Cucumis dipsaceus Ehrenb. ex Spach  | 4C  | (Hatch 82)  |
| Cucumis prophetarum L  | 4C  | (Hatch 82)  |
| Cuscuta hyalina Roth.  | 3C  | (Laetsch 156)  |
| Cymbopogon schoenanthus (L.) Spreng  | 3C  | (Laetsch 156)  |
| Cynanchum acutum L  | 4C  | (Hatch 82)  |
| Cyperus conglomerates Rottb.  | 3C  | (Laetsch 156)  |
| Cyperus rotundus L.  | 4C  | (Hatch 82)  |
| Dactyloctenium aegyptium (L.) P. Beauv  | 4C  | (Hatch 82)  |
| Dichanthium annulatum (Forssk.) Stapf  | 3C  | (Laetsch 156)  |
| Dichanthium foveolatum (Delile) Roberty  | 3C  | (Laetsch 156)  |
| Dicoma tomentosa Cass.  | 4C  | (Hatch 82)  |
| Digera muricata (L.) Mast  | MAC  | (Laetsch 156)  |
| Digitaria ciliaris (Retz.) Koeler  | 3C  | (Laetsch 156)  |
| Dipcadi erythraeum Webb & Berth.  | 4C  | (Hatch 82)  |
| Diptergium glaucum Decne  | 4C  | (Hatch 82)  |
| Echinochloa colona (L.) Link  | 4C  | (Hatch 82)  |
| Echinops hussonii Boiss.  | 4C  | (Hatch 82)  |
| Echinops polyceras Boiss  | 3C  | (Laetsch 156)  |
| Emex spinosus (L.) Campd  | 3C  | (Laetsch 156)  |
| Eragrostis minor Host.  | 3C  | (Laetsch 156)  |
| Erythrococca abyssinica Pax.  | 4C  | (Laetsch 156)  |
| Euphorbia arabica T. Anderson  | 3C  | (Laetsch 156)  |
| Euphorbia cuneata Vahl  | 3C  | (Laetsch 156)  |
| Euphorbia granulata Frossk  | 4C  | (Laetsch 156)  |
| Euphorbia inaequilatera Sond.  | 3C  | (Laetsch 156)  |
| Euphorbia prostrata Ait.  | 3C  | (Laetsch 156)  |
| Euphorbia retusa Frossk  | 3C  | (Laetsch 156)  |
| Euphorbia scordifolia Jacq.  | 3C  | (Laetsch 156)  |
| Euphorbia serpens Kunth  | 3C  | (Laetsch 156)  |
| Fagonia mollis Delile.  | 3C  | (Laetsch 156)  |
| Fagonia ovalifolia Hadidi  | 3C  | (Laetsch 156)  |
| Fagonia paulayana Wagner & Vierh.  | 3C  | (Laetsch 156)  |
| Farsetia longisiliqua Decne  | 3C  | (Laetsch 156)  |
| Farsetia stylosa R. Br  | 3C  | (Laetsch 156)  |
| Ficus salicifolia Vahl  | 3C  | (Laetsch 156)  |
| Flaveria trinervia (Spreng.) Mohr  | 3C  | (Laetsch 156)  |
| Frankenia revolute Frossk.  | 3C  | (Laetsch 156)  |
| Gisekia phranaceoides L  | 3C  | (Laetsch 156)  |
| Glinus lotoides L.  | 3C  | (Laetsch 156)  |
| Glossonema boveanum subsp. nubicum (Decne.) bullock  | 3C  | (Laetsch 156)  |
| Gynandropsis gynandra (L.)Briq., Ann  | 3C  | (Laetsch 156)  |
| Gypsophila capillaries (Forssk.)C. Chr  | 3C  | (Laetsch 156)  |
| Haloxylon scoparium Pomel  | 3C  | (Laetsch 156)  |
| Heliotropium arbainense Fresen.  | 3C  | (Laetsch 156)  |
| Heliotropium bacciferum Forssk  | 3C  | (Laetsch 156)  |
| Heliotropium digynum(Forssk.)  | 3C  | (Laetsch 156)  |
| Heliotropium kotschyi (Burnge) Gurke  | 4C  | (Hibberd and S 183)  |
| Heliotropium pterocarpum Hochst. & Steud.  | 4C  | (Hibberd and S 183)  |
| Heliotropium strigosum Willd.  | 4C  | (Hibberd and S 183)  |
| Hyphaene thebaica (L.) Mart  | 3C  | (Laetsch 156)  |
| Indigofera argenata L.  | 3C  | (Laetsch 156)  |
| Indigofera carulea Roxb.  | 3C  | (Laetsch 156)  |
| Indigofera hoschstettei Baker  | 4C  | (Hibberd and S 183)  |
| Indigofera oblongifolia Forssk.  | 4C  | (Hibberd and S 183)  |
| Indigofera spinosa Frossk  | MAC  | (Laetsch 156)  |
| Iphiona scabra DC. k  | 3C  | (Laetsch 156)  |
| Ipomea aquatica Forssk  | 4C  | (Hibberd and S 183)  |
| Kichxia floribunda (Boiss.) Taeckh. & Boulos  | 3C  | (Laetsch 156)  |
| Lasiurus hirsutus (Forssk.)  | 4C  | (Hibberd and S 183)  |
| Latipes sengalensis Kunth  | 3C  | (Laetsch 156)  |
| Launaea nudicaulis (L.) Hook. f.  | 3C  | (Laetsch 156)  |
| Launea capitata (Spreng.) Dandy  | 3C  | (Laetsch 156)  |
| Launea mucronata subsp. cassiniana (Jaub.&Spach) N. Kilian  | 3C  | (Laetsch 156)  |
| Lavandula coronopifolia Poir.  | 3C  | (Laetsch 156)  |
| Lavandula pubescens Decne  | 3C  | (Laetsch 156)  |
| Leptadenia arborea (Forssk.) Schweinf  | 3C  | (Laetsch 156)  |
| Leptothrium senegalense (Kunth) Clayton  | 3C  | (Laetsch 156)  |
| Lindenbergia indica O. Kuntze  | 3C  | (Laetsch 156)  |
| Mareua crassifolia Frossk.  | 3C  | (Laetsch 156)  |
| Mareua oblongifolia (Frossk.) A. Rich.  | 3C  | (Laetsch 156)  |
| Melilotus indica L  | 3C  | (Laetsch 156)  |
| Mollugo cerviana (L.) Ser  | 3C  | (Laetsch 156)  |
| Moltkiopsis ciliata (Forssk.) I. M. Johnst  | 3C  | (Laetsch 156)  |
| Momordica balsamina L.  | 3C  | (Laetsch 156)  |
| Monsonia heliotropioides (Cav.) Boiss.  | 3C  | (Laetsch 156)  |
| Morettia canescens Boiss  | 3C  | (Laetsch 156)  |
| Morettia parviflora Boiss.  | 3C  | (Laetsch 156)  |
| Moringa peregrine (Forssk) F.  | 3C  | (Laetsch 156)  |
| Nannorrhops ritchieana (Griff.) Aitch  | 3C  | (Laetsch 156)  |
| Nepeta deflersiana Schweinf. ex Hedge  | 3C  | (Laetsch 156)  |
| Neurada procumbens L  | 3C  | (Laetsch 156)  |
| Ochradenus arabicus Chaudhary, Hillc. & A. G. Mill  | 3C  | (Laetsch 156)  |
| Ochtochloa compressa (Forssk.) Hilu  | 3C  | (Laetsch 156)  |
| Odontanthera radians (Forssk.) D. V. Field  | 3C  | (Laetsch 156)  |
| Onobrychis ptolemaica (Delile) DC  | 3C  | (Laetsch 156)  |
| Oxystelma esculentum (L. F.) R. Br  | 3C  | (Laetsch 156)  |
| Pancratium sickenbergi Asch.&Schweinf  | 3C  | (Laetsch 156)  |
|  | 3C  | (Laetsch 156)  |
| Panicum turgidum Forssk.  | 4C  | (Hibberd and S 183)  |
| Parkinsonia aculeate L  | 4C  | (Hibberd and S 183)  |
| Paronychia arabica (L.) DC  | 4C  | (Hibberd and S 183)  |
| Phoenix dactylifera L.  | 3C  | (Laetsch 156)  |
| Phragmites australis (Cav.)Trin ex Steud.  | 3C  | (Laetsch 156)  |
| Phyllanthus maderaspatensis L.  | 4C  | (Hibberd and S 183)  |
| Phyllanthus rotundifolius Willd  | 3C  | (Laetsch 156)  |
| Pistacia khinjuk Stocks  | 3C  | (Laetsch 156)  |
| Pithecellobium dulce (Roxb.) Benth.  | 3C  | (Laetsch 156)  |
| Pluchea dioscoridis (L.) DC.  | 3C  | (Laetsch 156)  |
| Poa bulbosa L.  | 3C  | (Laetsch 156)  |
| Polycarpaea robbairea (Kuntze) Greuter & Burdet  | 3C  | (Laetsch 156)  |
| Polygala erioptera DC  | 3C  | (Laetsch 156)  |
| Polygonum argyrocoleum G. Kunze  | 3C  | (Laetsch 156)  |
| Portulaca quadrifida L.  | 3C  | (Laetsch 156)  |
| Prosopis Juliflora (Sw.) DC  | 3C  | (Laetsch 156)  |
| Pulicaria crispa (Forssk.)Benth. & Hook  | 3C  | (Laetsch 156)  |
| Pulicaria orientalis Jaub. & Spach  | 3C  | (Laetsch 156)  |
| Pupalia lappacea (L.) Juss  | 3C  | (Laetsch 156)  |
| Reseda luteola L.  | 3C  | (Laetsch 156)  |
| Rhazya stricta Decne.  | 3C  | (Laetsch 156)  |
| Rhynchosia minima (L.) DC  | 3C  | (Laetsch 156)  |
| Ricinus communis L.  | 3C  | (Laetsch 156)  |
| Rostraria cristata (L.) Tzvelev  | 3C  | (Laetsch 156)  |
| Ruellia patula Jacq  | 3C  | (Laetsch 156)  |
| Rumex vesicarius L.  | 3C  | (Laetsch 156)  |
| Salsola imbricata Forssk.  | 3C  | (Laetsch 156)  |
| Salsola spinescens Moq.  | 3C  | (Laetsch 156)  |
| Salsola tetrandra Forssk.  | 3C  | (Laetsch 156)  |
| Schouwia purpurea (Forssk.) Schweinf  | 4C  | (Hatch 82)  |
| Scrophularia arguta Soland. ex Ait.  | 4C  | (Hatch 82)  |
| Seddera virgata Hochst. & Steud.  | 3C  | (Laetsch 156)  |
| Senna alexandrina Mill.  | 4C  | (Hatch 82)  |
| Senna holosericea (Fresen.) Greuter  | 3C  | (Laetsch 156)  |
| Senna italica Mill.  | 4C  | (Hatch 82)  |
| Sesbania sesban (L.) Merr  | 3C  | (Laetsch 156)  |
| Sesuvium sesuviodes(Fenzl) Verdc.  | 3C  | (Laetsch 156)  |
| Setaria verticillata (L.) P. Beauv.  | 4C  | (Hatch 82)  |
| Setaria viridis (L.) P. Beauv  | 3C  | (Laetsch 156)  |
| Sida rhambifolia L.  | 3C  | (Laetsch 156)  |
| Sisybrium erysimoides Desef.  | 3C  | (Laetsch 156)  |
| Solanum nigrum L  | 3C  | (Laetsch 156)  |
| Solanum sinaicum Boiss.  | 3C  | (Laetsch 156)  |
| Sonchus oleraceus  | 3C  | (Laetsch 156)  |
| Sorghum halepense (L.) Pers.  | 3C  | (Laetsch 156)  |
| Stipa capensis Thunb.  | 3C  | (Laetsch 156)  |
| Stipa parviflora Desf.  | 3C  | (Laetsch 156)  |
| Stipagrostis plumosa (L.) Mun. ex T. And  | 3C  | (Laetsch 156)  |
| Suaeda aegyptiaca (Hasselq.) Zohary  | 3C  | (Laetsch 156)  |
| Suaeda monica Frossk. ex J. F. Gmel.  | 3C  | (Laetsch 156)  |
| Sueda vermiculata Forssk. ex J. F. Gmel.  | 3C  | (Laetsch 156)  |
| Tamarix aphylla (L.) Karst.  | 3C  | (Laetsch 156)  |
| Tamarix nilotica (Ehrenb.) Bunge  | 3C  | (Laetsch 156)  |
| Taverniera lappacea (Forssk.) DC  | 4C  | (Hatch 82)  |
| Tephorosia apollineae (Delile) DC  | 3C  | (Laetsch 156)  |
| Tephorosia nubica (Boiss.) Baker  | 4C  | (Hatch 82)  |
| Tephrosia desertorum L.  | 3C  | (Laetsch 156)  |
| Tephrosia nubica (Boiss.) Baker  | 3C  | (Laetsch 156)  |
| Tragus racemosus (L.) All.  | 3C  | (Laetsch 156)  |
| Trianthema portulacastrum L  | 3C  | (Laetsch 156)  |
| Trianthema sedifolia Visiani  | 3C  | (Laetsch 156)  |
| Tribulus pentandrus Forssk.  | 3C  | (Laetsch 156)  |
| Tribulus pterocarpus Forssk.  | 3C  | (Laetsch 156)  |
| Tribulus terrestris L  | 3C  | (Laetsch 156)  |
| Trichodesma africanum (L.)R. Br.  | 3C  | (Laetsch 156)  |
| Trichodesma ehrenbergiana Schweinf  | 3C  | (Laetsch 156)  |
| Trisetaria macrochaeta (Boiss.) Maire  | 3C  | (Laetsch 156)  |
| Withania somnifera (L). Dunal.  | 3C  | (Laetsch 156)  |
| Zaleya pentandra (L.) C. Jeffrey  | 3C  | (Laetsch 156)  |
| Ziziphus spina christi (L)Desf  | 3C  | (Laetsch 156)  |
| Zygophyllum album L. F  | 4C  | (Hatch 82)  |
| Zygophyllum coccienum L  | 3C  | (Laetsch 156)  |
| Zygophyllum quatarense Hadidi  | 3C  | (Laetsch 156)  |

## Works Cited

Hatch, Michael D. “ C4 photosynthesis: a unique blend of modified biochemistry, anatomy and ultrastructure.” Biochim Biophys Acta (2007): 81-106. print.

Hibberd, JM and Covshoff S. “ The regulation of gene expression required for C4 photosynthesis.” Annu Review Plant (2010): 181-207. Print.

P., Laetsch. ” Photosynthesis and Photorespiration,.” Hatch, Osmond and Slatyer (2000): 154-160. print.