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Question: Assessment of certainty of overall evidence based on all outcomes (reported metabolite groups) across 147 included articles
Setting:
Bibliography: Each metabolite group was treated as an outcome and evidence which was further being evaluated by following the 5 domains in GRADE approach.

Certainty assessment							Impact	Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Primary metabolite group 1: Amino acids									
46	non-randomised studies	not serious	serious[a]	very serious[b]	extremely serious[c]	publication bias strongly suspected[d]	The certainty of evidence for this outcome is very low. Although risk of bias is generally low within studies, findings are inconsistent due to selective reporting and potential publication bias. Indirectness arises from level 2 annotation, and the inability to perform quantitative synthesis results in imprecision.	⨁◯◯◯ Very low[a,b,c,d]	IMPORTANT
Primary metabolite group 2: Carbohydrates									
44	non-randomised studies	not serious	serious[a]	very serious[b]	extremely serious[c]	publication bias strongly suspected[d]	The certainty of evidence for this outcome is very low. Although risk of bias is generally low within studies, findings are inconsistent due to selective reporting and potential publication bias. Indirectness arises from level 2 annotation, and the inability to perform quantitative synthesis results in imprecision.	⨁◯◯◯ Very low[a,b,c,d]	IMPORTANT
Primary metabolite group 3: Lipids									
34	non-randomised studies	not serious	serious[a]	very serious[b]	extremely serious[c]	publication bias strongly suspected[d]	The certainty of evidence for this outcome is very low. Although risk of bias is generally low within studies, findings are inconsistent due to selective reporting and potential publication bias. Indirectness arises from level 2 annotation, and the inability to perform quantitative synthesis results in imprecision.	⨁◯◯◯ Very low[a,b,c,d]	IMPORTANT
Primary metabolite group 4: Nucleotides									
14	non-randomised studies	not serious	serious[a]	very serious[b]	extremely serious[c]	publication bias strongly suspected[d]	The certainty of evidence for this outcome is very low. Although risk of bias is generally low within studies, findings are inconsistent due to selective reporting and potential publication bias. Indirectness arises from level 2 annotation, and the inability to perform quantitative synthesis results in imprecision.	⨁◯◯◯ Very low[a,b,c,d]	IMPORTANT
Primary metabolite group 5: Organic acids									
46	non-randomised studies	not serious	serious[a]	very serious[b]	extremely serious[c]	publication bias strongly suspected[d]	The certainty of evidence for this outcome is very low. Although risk of bias is generally low within studies, findings are inconsistent due to selective reporting and potential publication bias. Indirectness arises from level 2 annotation, and the inability to perform quantitative synthesis results in imprecision.	⨁◯◯◯ Very low[a,b,c,d]	IMPORTANT
Primary metabolite group 6: Vitamins									
25	non-randomised studies	not serious	serious[a]	very serious[b]	extremely serious[c]	publication bias strongly suspected[d]	The certainty of evidence for this outcome is very low. Although risk of bias is generally low within studies, findings are inconsistent due to selective reporting and potential publication bias. Indirectness arises from level 2 annotation, and the inability to perform quantitative synthesis results in imprecision.	⨁◯◯◯ Very low[a,b,c,d]	IMPORTANT
Primary metabolite group 7: Others (nitrogen-containing compounds)									
3	non-randomised studies	not serious	serious[a]	very serious[b]	extremely serious[c]	publication bias strongly suspected[d]	The certainty of evidence for this outcome is very low. Although risk of bias is generally low within studies, findings are inconsistent due to selective reporting and potential publication bias. Indirectness arises from level 2 annotation, and the inability to perform quantitative synthesis results in imprecision.	⨁◯◯◯ Very low[a,b,c,d]	IMPORTANT
Secondary metabolite group 1: Nitrogen-containing group (alkaloids)									
9	non-randomised studies	not serious	serious[a]	very serious[b]	extremely serious[c]	publication bias strongly suspected[d]	The certainty of evidence for this outcome is very low. Although risk of bias is generally low within studies, findings are inconsistent due to selective reporting and potential publication bias. Indirectness arises from level 2 annotation, and the inability to perform quantitative synthesis results in imprecision.	⨁◯◯◯ Very low[a,b,c,d]	IMPORTANT
Secondary metabolite group 1: Nitrogen-containing group (glucosinolates)									
43	non-randomised studies	not serious	serious[a]	very serious[b]	extremely serious[c]	publication bias strongly suspected[d]	The certainty of evidence for this outcome is very low. Although risk of bias is generally low within studies, findings are inconsistent due to selective reporting and potential publication bias. Indirectness arises from level 2 annotation, and the inability to perform quantitative synthesis results in imprecision.	⨁◯◯◯ Very low[a,b,c,d]	CRITICAL
Secondary metabolite group 1: Nitrogen-containing group (volatile compounds)									
4	non-randomised studies	not serious	serious[a]	very serious[b]	extremely serious[c]	publication bias strongly suspected[d]	The certainty of evidence for this outcome is very low. Although risk of bias is generally low within studies, findings are inconsistent due to selective reporting and potential publication bias. Indirectness arises from level 2 annotation, and the inability to perform quantitative synthesis results in imprecision.	⨁◯◯◯ Very low[a,b,c,d]	IMPORTANT
Secondary metabolite group 2: Phenolic compounds (flavonoids)									

90	non-randomised studies	not serious	serious[a]	very serious[b]	extremely serious[c]	publication bias strongly suspected[d]	The certainty of evidence for this outcome is very low. Although risk of bias is generally low within studies, findings are inconsistent due to selective reporting and potential publication bias. Indirectness arises from level 2 annotation, and the inability to perform quantitative synthesis results in imprecision.	⨁◯◯◯ Very low[a,b,c,d]	CRITICAL
Secondary metabolite group 2: Phenolic compounds (phenolic acids)									
81	non-randomised studies	not serious	serious[a]	very serious[b]	extremely serious[c]	publication bias strongly suspected[d]	The certainty of evidence for this outcome is very low. Although risk of bias is generally low within studies, findings are inconsistent due to selective reporting and potential publication bias. Indirectness arises from level 2 annotation, and the inability to perform quantitative synthesis results in imprecision.	⨁◯◯◯ Very low[a,b,c,d]	CRITICAL
Secondary metabolite group 3: Terpenoids (glycosylated)									
11	non-randomised studies	not serious	serious[a]	very serious[b]	extremely serious[c]	publication bias strongly suspected[d]	The certainty of evidence for this outcome is very low. Although risk of bias is generally low within studies, findings are inconsistent due to selective reporting and potential publication bias. Indirectness arises from level 2 annotation, and the inability to perform quantitative synthesis results in imprecision.	⨁◯◯◯ Very low[a,b,c,d]	IMPORTANT
Secondary metabolite group 3: Terpenoids (non-glycosylated)									
49	non-randomised studies	not serious	serious[a]	very serious[b]	extremely serious[c]	publication bias strongly suspected[d]	The certainty of evidence for this outcome is very low. Although risk of bias is generally low within studies, findings are inconsistent due to selective reporting and potential publication bias. Indirectness arises from level 2 annotation, and the inability to perform quantitative synthesis results in imprecision.	⨁◯◯◯ Very low[a,b,c,d]	CRITICAL
Secondary metabolite group 4: Tetrapyrroles (porphyrins)									
19	non-randomised studies	not serious	serious[a]	very serious[b]	extremely serious[c]	publication bias strongly suspected[d]	The certainty of evidence for this outcome is very low. Although risk of bias is generally low within studies, findings are inconsistent due to selective reporting and potential publication bias. Indirectness arises from level 2 annotation, and the inability to perform quantitative synthesis results in imprecision.	⨁◯◯◯ Very low[a,b,c,d]	IMPORTANT
Secondary metabolite group 5: Others (lipid-derived volatile compounds)									
5	non-randomised studies	not serious	serious[a]	very serious[b]	extremely serious[c]	publication bias strongly suspected[d]	The certainty of evidence for this outcome is very low. Although risk of bias is generally low within studies, findings are inconsistent due to selective reporting and potential publication bias. Indirectness arises from level 2 annotation, and the inability to perform quantitative synthesis results in imprecision.	⨁◯◯◯ Very low[a,b,c,d]	IMPORTANT

CI: confidence interval

Explanations

a. Some studies have reported comparable metabolite profiles in the same leafy vegetables under similar conditions (including analytical methods, cultivation environment, and extraction solvents), whereas others have reported contrasting results or not reporting at all due to the different interest.
b. Most metabolite annotations are level 2 as they are tentatively annotated.
c. Quantitative data was not provided across most studies.
d. Most publication reported known compounds and ignored unknown compounds.