Supplementary information

Search strategy:

PubMed:

("diabetes mellitus"[MeSH Terms] OR ("diabetes"[All Fields] AND "mellitus"[All Fields]) OR "diabetes mellitus"[All Fields]) AND ((("taste buds"[MeSH Terms] OR ("taste"[All Fields] AND "buds"[All Fields]) OR "taste buds"[All Fields] OR ("taste"[All Fields] AND "receptor"[All Fields]) OR "taste receptor"[All Fields]) AND ("genes"[MeSH Terms] OR "genes"[All Fields] OR "gene"[All Fields])) OR (("taste"[MeSH Terms] OR "taste"[All Fields] OR "tastes"[All Fields] OR "tasting"[All Fields] OR "tasted"[All Fields] OR "tasteful"[All Fields] OR "tastings"[All Fields]) AND ("genes"[MeSH Terms] OR "genes"[All Fields] OR "gene"[All Fields])) OR (("taste"[MeSH Terms] OR "taste"[All Fields] OR "tastes"[All Fields] OR "tasting"[All Fields] OR "tasted"[All Fields] OR "tasteful"[All Fields] OR "tastings"[All Fields]) AND ("polymorphism, genetic"[MeSH Terms] OR ("polymorphism"[All Fields] AND "genetic"[All Fields]) OR "genetic polymorphism"[All Fields] OR ("gene"[All Fields] AND "polymorphisms"[All Fields]) OR "gene polymorphisms"[All Fields])) OR (("taste"[MeSH Terms] OR "taste"[All Fields] OR "tastes"[All Fields] OR "tasting"[All Fields] OR "tasted"[All Fields] OR "tasteful"[All Fields] OR "tastings"[All Fields]) AND ("genes"[MeSH Terms] OR "genes"[All Fields] OR "gene"[All Fields]) AND ("mutate"[All Fields] OR "mutated"[All Fields] OR "mutates"[All Fields] OR "mutating"[All Fields] OR "mutation"[MeSH Terms] OR "mutation"[All Fields] OR "mutations"[All Fields] OR "mutation s"[All Fields] OR "mutational"[All Fields] OR "mutator"[All Fields] OR "mutators"[All Fields])))

Translations

Diabetes mellitus: "diabetes mellitus"[MeSH Terms] OR ("diabetes"[All Fields] AND "mellitus"[All Fields]) OR "diabetes mellitus"[All Fields]

taste receptor: "taste buds"[MeSH Terms] OR ("taste"[All Fields] AND "buds"[All Fields]) OR "taste buds"[All Fields] OR ("taste"[All Fields] AND "receptor"[All Fields]) OR "taste receptor"[All Fields]

gene: "genes"[MeSH Terms] OR "genes"[All Fields] OR "gene"[All Fields]

taste: "taste"[MeSH Terms] OR "taste"[All Fields] OR "tastes"[All Fields] OR "tasting"[All Fields] OR "tasted"[All Fields] OR "tasteful"[All Fields] OR "tastings"[All Fields]

gene: "genes"[MeSH Terms] OR "genes"[All Fields] OR "gene"[All Fields]

taste: "taste"[MeSH Terms] OR "taste"[All Fields] OR "tastes"[All Fields] OR "tasting"[All Fields] OR "tasted"[All Fields] OR "tasteful"[All Fields] OR "tastings"[All Fields]

gene polymorphisms: "polymorphism, genetic"[MeSH Terms] OR ("polymorphism"[All Fields] AND "genetic"[All Fields]) OR "genetic polymorphism"[All Fields] OR ("gene"[All Fields] AND "polymorphisms"[All Fields]) OR "gene polymorphisms"[All Fields]

taste: "taste"[MeSH Terms] OR "taste"[All Fields] OR "tastes"[All Fields] OR "tasting"[All Fields] OR "tasted"[All Fields] OR "tasteful"[All Fields] OR "tastings"[All Fields]

gene: "genes"[MeSH Terms] OR "genes"[All Fields] OR "gene"[All Fields]

mutations: "mutate"[All Fields] OR "mutated"[All Fields] OR "mutates"[All Fields] OR "mutating"[All Fields] OR "mutation"[MeSH Terms] OR "mutation"[All Fields] OR "mutations"[All Fields] OR "mutation's"[All Fields] OR "mutational"[All Fields] OR "mutator"[All Fields] OR "mutators"[All Fields]

ScienceDirect and Cochrane library databases:

Diabetes mellitus AND (taste receptor gene OR taste gene OR taste gene polymorphisms OR taste gene mutations)

Google Scholar:

#1. allintitle: Diabetes mellitus AND taste receptor.

#2. allintitle: Diabetes mellitus AND taste gene.

#3. allintitle: Diabetes mellitus AND taste polymorphism.

#4. allintitle: Diabetes AND taste receptor.

#5. allintitle: Diabetes AND taste AND polymorphism.

#6. allintitle: Diabetes AND taste gene.

#7. allintitle: type 2 Diabetes Mellitus AND taste gene.

#8. allintitle: type 2 Diabetes Mellitus AND taste receptor.

#9. allintitle: type 2 Diabetes Mellitus AND taste.

#10. allintitle: type 2 Diabetes AND taste.

Table S1. Demographic characteristics of the studies included in the systematic review.

Study	**Mean age in years** **Mean ± SD**	**T2DM diagnostic criteria**	**NOS overall quality** (scores based on three domains)
Leprêtre et al. [20], 2004	NA	NA	Good (Selection = 4, comparability = 1, outcome = 3)
Corpeleijn et al. [21], 2006	Cases: 60.3 ± 6.2; Controls: 58.1 ± 7.4	After an overnight fast, subjects underwent a standard 75-g oral glucose tolerance test (OGTT) with venous blood sampling and were characterized for glucose tolerance according to the World Health Organization criteria of 1999	Good (Selection = 4, comparability = 1, outcome = 3)
Dotson et al. [22], 2008	Cases: 60.8±14.8, Controls: 41.7±14.4	75 g oral glucose tolerance test (OGTT)	Good (Selection = 3, comparability = 1, Exposure = 3)

Banerjee et al. [23], 2010	Cases: 48.39±9.91, Controls: 47.07±6.01	Subjects with fasting glucose concentrations of 126 mg/dl or 2-h glucose concentrations of 200 mg/dl after a 75g oral glucose tolerance test were categorized in the diabetes group	Good (Selection = 3, comparability = 1, Exposure = 3)
Wang et al. [24], 2012	Cases: 59.5±10.8, Controls: 53.2±11.8	Oral glucose tolerance test (OGTT) was applied to estimate the status of NGT, IGT, IFG, and T2D based on American Diabetes Association criteria.	Good (Selection = 3, comparability = 1, Exposure = 3)
Gautam et al. [25], 2015	NA	NA	Good (Selection = 3, comparability = 1, outcome = 3)
Tabur et al. [26], 2015	Cases: 42.25±12.22, Controls: 41.89±9.42	Fasting blood glucose ≥ 100 mg/dl or treatment of type 2 diabetes.	Good (Selection = 3, comparability = 1, Exposure = 3)

Park et al. [27], 2016	Cases: 56.0±8.8, Controls: 51.3±8.7	Type 2 diabetes was defined as fasting glucose ≥ 126 mg/dl or 2-hour glucose ≥ 200 mg/dl during an OGTT or current use of antidiabetic medications, whereas glucose intolerance was categorized as 100 mg/dl < fasting glucose < 126 or 140 mg/dl < serum glucose levels 120 min after oral glucose loading < 200 mg/dl.	Good (Selection = 4, comparability = 3, outcome = 1)
Zhang et al. [28], 2018	Cases: 53.50, Controls: 53.00	T2DM was defined as FPG ≥7.0 mmol/l and/or current treatment with anti-diabetes medication according to the China guideline for type 2 diabetes	Good (Selection = 3, comparability = 1, Exposure = 1)
Fujii et al. [29], 2019	63.9	Diabetes mellitus was defined as fasting blood glucose ≥ 100 mg/dl (5·55 mmol/l) or use of medications for diabetes mellitus.	Good (Selection = 4, comparability = 1, outcome = 3)

Mrag et al. [30], 2020	62.05±11.3	NA	Good (Selection = 4, comparability = 1, outcome = 3)
Hatmal et al. [31], 2021	Cases: 57.33, Controls: 50.81	Diabetic participants that enrolled in this study were with known history of diabetes and recruited from Jordan University Hospital (JUH).	Good (Selection = 4, comparability = 1, Exposure = 3)
Touré et al. [32], 2022	Cases: 50.80, Controls: 48.98	type 2 diabetes mellitus was confirmed by clinical and biological examinations (fasting blood glucose and glycosylated hemoglobin levels) according to the World Health Organization (WHO) diabetes diagnostic criteria set in 1979	Good (Selection = 3, comparability = 1, Exposure = 3)
Franzago et al. [33], 2023	65	NA	Good (Selection = 4, comparability = 1, outcome = 3)

Lee and Shin [34], 2023	51.1	Fasting blood glucose level measured after at least 8 h ≥ 126 mg/dL and blood glucose level after 2 h 75 g oral glucose tolerance test ≥ 200 mg/dL; newly diagnosed with T2DM; or under treatment with insulin or oral antidiabetic drugs during or between the follow-up examinations based on the criteria of the World Health Organization and the American Diabetes Association.	Good (Selection = 4, comparability = 1, outcome = 3)
Husami et al. [35], 2025	Cases: 38.98±7.62, Controls: 40.07±12.19	Based on American Diabetes Association guidelines.	Good (Selection = 3, comparability = 1, outcome = 3)

NA: not available; OGTT: oral glucose tolerance test; T2DM: type 2 diabetes mellitus; NOS: Newcastle-Ottawa scale.