**Supplemental Table S1:** Details of meta-analysis.

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| Author | Country | Year | Meat product | NPE source |
| Afshar et al.[1] | Iran | 2021 | Skinless and boneless chicken fillets | Nepeta pogonosperma |
| Al-Juhaimi et al. [2] | Saudi Arabia | 2020 | Beef burger | Acacia nilotica |
| Aksu & Turan [3] | Turkey | 2022 | Ground beef | Black carrots |
| Alexandre et al.[4] | Brazil | 2021 | Beef | Basil |
| Aslam et al.[5] | Pakistan | 2020 | Chicken Patties | Licorice |
| Aykln-Dinçer et al.[6] | Turkey | 2021 | Sausages | Beetroot |
| Bazhenova et al.[7] | Russia | 2020 | Meat paste | lingonberry |
| Cao et al.[8] | China | 2022 | Beef | Portulaca oleracea, Mignonette |
| Deepitha et al.[9] | India | 2021 | pangasius fillets | seaweed |
| Demir & Ağaoğlu[10] | Turkey | 2021 | Minced Meat | Artichoke |
| Fernández-López et al.[11] | Spain | 2020 | Bologna-Type Sausages | Black Quinoa |
| Fruet et al.[12] | USA | 2020 | Beef Patties | Quebracho Colorado Wood |
| Guo et al.[13] | China | 2021 | Beef | Watermelon |
| Gutiérrez-Pacheco et al.[14] | Mexico | 2021 | Pork sausages | Pomegranate |
| Hać-Szymańczuk et al.[15] | Poland | 2021 | Chicken meatballs | Rosemary |
| Hastaoğlu et al.[16] | Turkey | 2021 | Beef | Thyme, Rosemary, Red beet |
| Hemmatkhah et al.[17] | Iran | 2020 | Beef Hamburger | Cumin |
| Jokanović et al.[18] | Serbia | 2020 | Precooked pork chops | Winter savory |
| Jonušaite et al.[19] | Lithuania | 2021 | Fish Burgers | Black elderberry |
| Jurčaga et al.[20] | Slovakia | 2021 | Frankfurter sausage | Blackcurrant,Kamchatka Honeysucklen |
| L. de O. Silva et al.[21] | Brazil | 2021 | Bluefish fillet | Pomegranates |
| Li et al. [22] | China | 2022 | Roast large yellow croaker | Blueberry, Acerola cherry, Grape |
| Liang et al.[23] | China | 2022 | Beef patties | Sugarcane, Orange, Tomato |
| Macari et al.[24] | Moldova | 2021 | Sausages | Basil, Summer savory, Tarragon |
| Menegali et al.[25] | Brazil | 2020 | Chicken burger | Pink pepper |
| Montaño-Sánchez et al.[26] | Mexico | 2020 | Pork Chops | Green Tea |
| Nitteranon & Sayompark[27] | Thailand | 2021 | Cooked pork patties | Dimocarpus longan var. obtusus |
| Nor Mazila Ramli et al.[28] | Malaysia | 2021 | Beef | pineapple,Jackfruit |
| P.Aliyari et al.[29] | Iran | 2020 | Beef sausage | Pomegranate , Pistachio |
| Rico et al.[30] | Spain | 2020 | Fish Burgers | Sea Fennel |
| Romero et al.[31] | Argentina | 2020 | Beef patties | Eugenia uniflora L. ,  Opuntia ficus-indica |
| Rubab et al.[32] | Korea | 2020 | Beef | Red Cabbage |
| Rubel et al.[33] | Bangladesh | 2020 | Mutton meatball | Olive |
| Saleh et al.[34] | Egypt | 2020 | Chicken breast | Olive |
| Sharma et al.[35] | Thailand | 2020 | Raw chicken sausages | Moringa oleifera seed |
| Shukla et al.[36] | India | 2020 | chicken patties | Syzygium aromaticum |
| Smit et al.[37] | Italy | 2020 | Italian salami | Honeybush |
| Šojić et al.[38] | Serbia | 2020 | Ground pork patties | Wild thyme |
| Stelmasiak et al.[39] | Poland | 2021 | smoked pork | Oregano, basil |
| Tamkutė et al.[40] | Lithuania | 2021 | Pork Burger and cooked ham | Chokeberries |
| Tomović et al.[41] | Serbia | 2020 | Dry Fermented Sausages | Juniperus communis L. |
| Tuffi et al.[42] | Brazil | 2021 | Beef meatballs | Grape |
| Villasante et al.[43] | Spain | 2020 | Beef Patties | Pecan Shell, Roselle Flower,Red Pepper |
| Wang et al.[44] | China | 2021 | Rabbit meat patties | purslane |
| Yerlikaya & Şen Arslan[45] | Turkey | 2021 | Chicken sausages | Sage, Lavender |
| Zhang et al.[46] | China | 2020 | Pork patties | Cauliflower |
| Zhou et al.[47] | China | 2021 | Western-style smoked sausage | Rosemary, Ginger |
| Zwolan et al.[48] | Poland | 2021 | chicken meatballs | Scutellaria baicalensis Georgi |

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