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Indigenous Food in Culinary Education: Educational Integration, Awareness and Learning Preferences Amongst Second-year Students in Gauteng

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Abstract

Indigenous foods (IF) are central to cultural heritage, sustainable diets, and food security in South Africa (SA), yet they remain underrepresented in South African Higher Education (SAHE) culinary and hospitality curriculum. This study explored second-year culinary students' knowledge, awareness, and learning preferences regarding IF to inform curriculum reform. A quantitative descriptive survey was conducted with 128 students from a traditional university and a university of technology in Gauteng. Data were collected using a structured questionnaire and analysed using descriptive statistics. Most participants were female and lived in urban areas during school term time. While the majority had consumed at least one IF in the past year, more than half demonstrated limited knowledge or misconceptions, often misclassifying foods like spinach and lentils as indigenous. Despite this, almost all students showed strong interest in learning more and supported bilingual instruction in English and native languages. Educational resources focusing on IF were underused. Very few students frequently used textbooks, case studies, or articles; learner guides and teaching notes were more common but inconsistently applied. Class discussions only partially aligned with the South African Food-Based Dietary Guidelines (SAFBDG), with crops such as sorghum, millet, cowpeas, and morogo underrepresented. The findings reveal key curriculum gaps. Strengthening IF content through bilingual, visual, and experiential learning can improve awareness, support sustainable food systems, preserve cultural heritage, and promote public health. Systematic curriculum reform is essential for decolonising SAHE and aligning hospitality education with national dietary goals.

Keywords: Indigenous food; culinary education; student awareness; learning preference; curriculum integration

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Introduction

Indigenous foods (IF), defined as both plant and animal species native to a particular geographic region, form an integral part of traditional diets, with plant-based foods growing naturally or being cultivated for consumption (Akinola et al., 2020). While indigenous and traditional foods are sometimes used interchangeably, a distinction exists: traditional foods are those prepared and consumed over generations as part of cultural heritage, whereas IF emphasise origin and natural occurrence in a particular environment (Akinola et al., 2020). Thus, while all IF can form part of traditional diets, not all traditional foods are indigenous; for example, European foods prepared within South Africa (SA) may be regarded as traditional in some communities, but they are not indigenous. For this paper, IF are considered in their broad sense. IF and its knowledge have existed in SA for more than 2000 years (Mulaudzi et al., 2019). These foods offer nutrient-dense options that protect against diseases such as cardiovascular and degenerative illnesses (Khoo et al., 2016) and provide a foundation for sustainable diets. Despite these benefits, indigenous culinary knowledge remains underrepresented in South African Higher Education (SAHE) curriculum, particularly in culinary studies (Mbhenyane, 2017; Hlatshwayo & Shawa, 2020). Since Quin's (1964) early work, indigenous food knowledge has mainly been transmitted orally, creating gaps in formal documentation (Mosima & Molotja, 2019). The lack of structured teaching materials and the omission of IF in the South African Food Based Dietary Guidelines (SAFBDG) (Gibney, 2001; van 't Erve et al., 2017) result in a curriculum dominated by European traditions, limiting students' competencies (Mbhenyane, 2017). Given the strategic role of culinary graduates positioned as future chefs and managers in shaping food choices, it is important to incorporate IF and its knowledge into the curriculum. Integrating this knowledge could support the decolonisation of SAHE (du Preez, 2018). However, integration requires understanding not only the gaps in curriculum content but also the awareness and learning preferences of students. Awareness is critical because limited exposure to IF in both academic and household settings contributes to negative perceptions and underutilisation (Mosima & Molotja, 2019). Likewise, learning preferences matter because students differ in how they engage best with new content, whether through experiential learning, demonstrations, practical cooking sessions, or theoretical study (Kolb, 1984). This study, therefore, investigates the integration of IF into culinary education by exploring educational needs, levels of awareness, and learning preferences amongst second-year culinary students in Gauteng. By focusing on this group, the study provides insights into how IF can be better represented in teaching, thereby equipping future graduates with skills that support cultural heritage, sustainable food systems, and inclusive culinary education.

Literature review

South Africa (SA), often described as a "rainbow nation," possesses a wealth of IF knowledge that has been passed down through generations, orally (Mofu, 2020). IF contribute nutritional, environmental, socio-cultural, economic, and medicinal benefits. Nutritionally, they provide essential micronutrients that mitigate malnutrition and hidden hunger (Ashraf et al., 2018; Akinola et al., 2020). Environmentally, many indigenous plants are drought-tolerant and resilient under climate change (Akinola et al., 2020). Socio-culturally, IF preserve cultural identity and knowledge exchange (Ndalilo et al., 2020). In the SA context, indigenous and regional foods form an important part of culinary heritage and tourism identity, reinforcing their relevance in both education and professional hospitality practice (Du Rand & Heath, 2016). Economically, they generate income through household consumption and local trade (Buchmann et al., 2010; Suwardi et al., 2020). Medicinally, both IF and their by-products are used in traditional remedies (Pfukwa et al., 2020).

SA's long history of colonisation disrupted local knowledge systems and led to IF being marginalised, often dismissed as "weeds" or as food for the poor and "uncivilised." For many years, there was little to no formal documentation of these foods, and only recently have some been recognised and labelled.

Globally, the documentation and integration of IF knowledge into education have advanced. For example, the Sámi people of Sweden have incorporated IF practices into childhood learning (Casi, 2019), while in Canada, multicultural urban spaces embrace IF from across the world (Veresiu & Giesler, 2018). Such initiatives highlight the potential role of education in preserving and mainstreaming indigenous culinary knowledge. In SA, however, IF knowledge remains underutilised in culinary education. The current hospitality curriculum is heavily skewed towards European practices, and culinary qualifications registered with the South African Qualifications Authority (SAQA) lack modules or outcomes related to IF knowledge or menu planning (SAQA, 2021). This gap has also been observed in professional culinary settings, where indigenous ingredients are often underutilised in contemporary menu development despite their cultural and nutritional value (Fisher & du Rand, 2022). The SAFBDG, which serves as the national dietary framework, also neglects IF, despite its alignment with affordability, accessibility, and nutritional adequacy (Legbara & Selepe, 2017; Gibney, 2001). This omission leaves graduates without the necessary skills to incorporate IF into menus, despite their availability and potential health benefits (Mbhenyane, 2017). This gap in the curriculum highlights an urgent need for documentation and integration of IF into SAHE. Addressing this gap could contribute to the Africanisation and decolonisation of the curriculum (du Preez, 2018; Ajani, 2019), while also preparing culinary graduates to promote nutrition security and sustainable food practices. Without such inclusion, culinary students will continue to graduate with limited exposure to indigenous culinary knowledge, weakening their ability to engage with community food systems and local food heritage. Limited household and academic exposure lead to negative perceptions and underutilisation of IF (Mosima & Molotja, 2019). Learning preferences also shape curriculum integration; some students favour experiential methods, others theory (Kolb, 1984). No study has examined these aspects among Gauteng's second-year culinary students, a key stage for skill development. Addressing this gap can inform culturally relevant, sustainable culinary education.

Methods

This study employed a quantitative descriptive survey design to explore second-year culinary students' awareness, learning preferences, and perceptions regarding the integration of IF knowledge in the culinary curriculum. Data were collected using a self-administered questionnaire with predominantly closed-ended items. The research was conducted at two Gauteng-based universities: a traditional university and a university of technology, both of which offer culinary-related qualifications. The target population comprised 230 registered second-year students enrolled in programmes such as Culinary Arts, Food Service Management, Gastronomy, and Hospitality. Using the institutions' Learning Management Systems (LMS), random selection generated the sample. A total of 128 students participated (64 per institution). The questionnaire, developed from existing literature (Mbhenyane, 2017; Mosima & Molotja, 2019; SAQA, 2021), had four sections: (1) socio-demographic data, (2) IF awareness and consumption practices, (3) perceptions of curriculum integration and use of educational resources, and (4) learning material preferences, mapped to Kolb's learning styles. Ethical approval was granted by the Faculty Research Ethics Committee (FREC/HS/28/07/2023/6.1.7). Participation was voluntary, with informed consent secured. Data were analysed using SPSS (version 29). Descriptive statistics (frequencies, percentages) summarised responses. Likert scale items were collapsed into three categories: unlikely, neutral, and likely. Reliability was assessed using Cronbach's alpha.

Results

Socio-demographic profile

Table 1 presents the socio-demographic characteristics of the participants (n=128). The majority were female (75.8%, n=97), aged 23 to 27 years (91.4%, n=117), and predominantly Black (95.3%, n=122). Most students resided in urban areas during the academic year (94.5%, n=121), while just over a third (34.4%, n=44) returned to rural areas during recess, indicating that some students maintain a rural connection.

Consumption of indigenous foods (IF)

The findings reveal that the majority, 84.4% (n=108) of the students reported consuming at least one SA indigenous food (IF) in the past 12 months. This provides an indication that students are exposed to IF despite reporting a limited amount of knowledge.

Indigenous food (IF) knowledge and interest

When asked about their knowledge of IF, only 3.1% (n=4) rated themselves as “excellent,” and 5.5% (n=7) as “very good”. About one-quarter (25.8%; n=33) considered their knowledge “good” while the majority rated themselves as “fair” (37.5%, n=48), poor (11.7%, n=15), or don’t know (16.4%, n=21). In total, 65.6% (n=84) of students demonstrated limited knowledge (“fair,” “poor,” or “don’t know”). Despite this, almost all participants (95.3%, n=122) expressed interest in learning more about IF, and 96.1% (n=123) preferred that indigenous food names be taught in both English and their native language. This highlights a strong student demand for curriculum integration.

Table 1. Socio-demographic, indigenous food knowledge and consumption (n=128)

QUESTION	Answers	Frequency (n)	Percentage (%)
Socio-demographics			
Gender	Male	31	24.2
	Female	97	75.8
Age	23 - 27	117	91.4
	28 - 32	11	8.6
Ethnicity	Black	122	95.3
	White	2	1.6
	Coloured	2	1.6
	Indian	1	0.8
	Other	1 (Chinese)	0.8
Describe the area in which you reside during school	Urban	121	94.5
	Rural	7	5.5
Describe the area in which you reside during recess	Urban	84	65.6
	Rural	44	34.4
Consumption			
Have you consumed at least one South African Indigenous food in the past 12 months?	No	20	15.6
	Yes	108	84.4
Current knowledge			
Current knowledge about South African Indigenous food	Poor	15	11.7
	Fair	48	37.5
	Don’t know	21	16.4
	Good	33	25.8
	Very good	7	5.5
	Excellent	4	3.1
Learning facilitation			
Would you prefer to learn more about indigenous foods?	No	6	4.7
	Yes	122	95.3
Would you prefer the Indigenous Food names to be in English and your native language?	No	5	3.9
	Yes	123	96.1

Educational tools in theory and practical classes

Table 2 presents the use of educational resources incorporating IF knowledge in theory and practical classes. Across both modes of teaching, IF textbooks were the least utilised, with 62.5% (n=80) of participants reporting “never or almost never” in theory and 68.8% (n=88) in practical classes. Only a small minority reported frequent use (Almost every time/Every time), 13.3% (n=17 and 11.7%) respectively. Case studies followed a similar pattern of low uptake, with 57.8% (n=74) of students reporting “never or almost never” in theory and 68.7% (n=88) in practical. Articles showed slightly higher use, with 21.1% (n=27) of participants reporting frequent use in theory and 14.0% (n=18) in practical classes, although more than half (51.5%, n=66) still reported rare or no use (never or almost never). Among all resources, teaching notes (25.8%, n=33) and learner guides (21.8%, n=28) for theory, and 21.1% (n=27) and 20.3% (n=26) for practical. Case studies were similarly underutilised, with 68.7% (n=88) never or almost never used and 8.6% (n=11) used frequently. Across both theory and practical classes, all educational materials related to IF knowledge showed average usage rates of 19.9% and 15.1% respectively, for “almost every time/every time.” The limited use of textbooks, case studies, and articles highlights a lack of integration of IF knowledge into formal teaching. Even learner guides and teaching notes, resources that should be central to curriculum delivery, were not consistently used. This suggests that the inclusion of IF knowledge in the culinary curriculum is still evolving at a slow pace. If Indigenous food (IF) knowledge is positioned as a formal learning outcome within modules, its integration into learner guides and prescribed resources could improve usage across all educational tools, thereby strengthening the alignment between curriculum and practice.

Table 2: Educational tools incorporating Indigenous foods in theory and practical classes

DESCRIPTION	THEORY	Never / Almost never	Occasionally	Almost Every Time / Every time	PRACTICAL	Never / Almost never	Occasionally	Almost Every Time / Every time
Indigenous food textbooks	Count (n)	80	31	17	Count (n)	88	25	15
	Row N %	62.5	24,2	13,3	Row N %	68.8	19,5	11.7
Indigenous food case studies	Count (n)	74	32	22	Count (n)	88	29	11
	Row N %	57.8	25,0	17.2	Row N %	68.7	22,7	8.6
Indigenous food articles	Count (n)	66	35	27	Count (n)	84	26	18
	Row N %	51.5	27,3	21.1	Row N %	65.6	20.3	14.0
Indigenous food teaching notes	Count (n)	59	36	33	Count (n)	73	28	27
	Row N %	46.1	28,1	25.8	Row N %	57.0	21,9	21.1
Indigenous food learner guide	Count (n)	73	27	28	Count (n)	74	28	26
	Row N %	57.0	21.1	21.8	Row N %	57.8	21,9	20.3

Familiarity with indigenous food (IF) educational tools

Information tools, in the context of this study, refer to learner guides, teaching notes, teaching slides, textbooks, and actual indigenous ingredients. Table 3 shows that more than half of the participants (56.2%; n=72) reported being not at all familiar or only slightly familiar with educational tools featuring pictures of IF, and only 19.5% (n=25) were moderately or extremely familiar. The majority (68%; n=87) reported low familiarity regarding tools featuring scientific names, with only 14.1% (n=18) indicating moderate or high familiarity. For tools using English names, 49.3% (n=63) reported being not at all or slightly familiar. Tools featuring local names of IF were the most familiar, with 31.3% (n=40) of participants reporting moderate or high familiarity. However, these findings suggest that across all categories, familiarity with IF educational tools remains limited, highlighting the need for improved integration into the curriculum.

Table 3: Familiar features in an educational tool within the curriculum

		Not At All Familiar/ Slightly Familiar	Somewhat Familiar	Moderately Familiar/ Extremely Familiar
Indigenous food information tools with pictures	Count (n)	72	31	25
	Row N %	56.2	24,2	19,5
Information tools with scientific names of Indigenous food	Count (n)	87	23	18
	Row N %	68	18,0	14.1
Information tools with English names of Indigenous food	Count (n)	63	40	25
	Row N %	49.3	31,3	19.5
Information tools with local names of Indigenous food	Count V	56	32	40
	Row N %	43.7	25,0	31.3

Utilisation of indigenous foods (IF) in theory and practical classes

Table 4 indicates the levels of engagement with the different types of IF in the theory and practical classes. In theory classes, green leafy vegetables were the most utilised (57.0%) with the participants specifying the name in their own language, such as Thepe, followed by grains (sorghum and millet) at 52.4%. Lower utilisation was reported for legumes at 33.6%, dried indigenous products (sun-dried leafy greens for off-season use) at 32.8% and fresh indigenous products (perishable ingredients) at 31.2%. Tubers showed the lowest use (15.7%), with the participants specifying names such as Amadumbe (Taro non-indigenous). For other products, the majority (57.0%; n=73) were neutral, with only 9.4% (n=12) expressing a high likelihood of utilisation. In practical classes, a similar trend was observed with green leafy vegetables (64.8%), followed by grains (63.3%), again dominating. Moderate engagement was recorded for fresh indigenous products at 42.2%, legumes at 41.4% and dried indigenous products at 36.0%, while tubers remained underutilised.

Table 4: The utilisation of indigenous food/crops in theory and practical classes

Description	Theory	Extremely Unlikely/ Unlikely	Neutral	Likely/ Extremely Likely	Practical	Extremely Unlikely/ Unlikely	Neutral	Likely/ Extremely Likely
Green leafy vegetables	Count (n)	27	28	73	Count (n)	27	18	83
	Row N %	21,1	21,9	57.0	Row N %	21.1	14,1	64.8
Tubers	Count (n)	81	27	20	Count (n)	74	27	27
	Row N %	63.3	21,1	15.7	Row N %	57.8	21,1	21.1
Legumes	Count (n)	49	36	43	Count (n)	42	33	53
	Row N %	38.3	28,1	33.6	Row N %	32.8	25,8	41.4
Grains	Count (n)	39	22	67	Count (n)	23	24	81
	Row N %	30.5	17,2	52.4	Row N %	18.0	18,8	63.3
Fresh Indigenous product	Count (n)	52	36	40	Count (n)	43	31	54
	Row N %	40.6	28,1	31.2	Row N %	33.6	24,2	42.2
Dried Indigenous product	Count (n)	59	27	42	Count (n)	55	27	46
	Row N %	46.1	21,1	32.8	Row N %	43.0	21,1	36.0
Other (specify)	Count (n)	43	73	12	Count (n)	42	67	19
	Row N %	33.6	57	9.4	Row N %	32.8	52,3	0.15

The results indicate that student engagement with IF is dominated by leafy vegetables and grains, reflecting a narrow curriculum focus. While these two groups are central to indigenous diets, the underrepresentation of tubers, legumes, and dried products suggests that students are not being adequately exposed to the full diversity of SA indigenous foods (IF), with tubers, legumes, and dried products underutilised. For example, several students identified Taro as an indigenous tuber of SA, even though it was historically introduced from Asia by Portuguese traders. There is a common misconception regarding indigenous crops. For example, certain green leafy vegetables such as Thepe, bitter leaves, blackjack leaves, wild jute, spider plant, and pumpkin leaves are indigenous, yet spinach is often incorrectly classified as one of them. Similarly, lentils are frequently mistaken for indigenous legumes. This misunderstanding also extends to classroom discussions, where grains such as sorghum and millet are sometimes inaccurately presented, further reinforcing the confusion. This limited exposure reinforces knowledge gaps and misconceptions, revealing a lack of integration of IF content in teaching and the absence of clear, reliable learning resources. Overall, the findings suggest that culinary education in Gauteng remains Eurocentric and selective in its integration of IF, giving students only a partial understanding. Without systematic inclusion of a wider range of indigenous ingredients, including tubers like Amadumbe, dried leafy greens, and legumes, graduates may continue to perpetuate misconceptions and fail to fully utilise IF in menu planning. Strengthening curriculum integration and correcting misinformation are therefore essential to both decolonisation efforts and the promotion of sustainable, culturally relevant food practices.

Alignment of indigenous foods (IF) with South African Food-Based Dietary Guidelines (SAFBDG)

Table 5 shows how food groups framed in the SAFBDG were discussed in culinary classes, with a focus on whether indigenous species were emphasised. In theory classes, vegetables were the most frequently covered category (62.5%), but discussion often centred on spinach rather than indigenous leafy vegetables such as morogo/Amaranthus, spider plant, and pumpkin leaves. Starchy foods were regularly addressed (57.1%), yet maize and potatoes dominated examples, while sorghum and millet received limited emphasis. Legumes were discussed by 34.3% of participants, but indigenous species such as cowpeas and bambara groundnut were often overshadowed by lentils, which many students misclassified as indigenous. Tubers were the least discussed group (15.7%), and amadumbe (taro) was incorrectly identified as an indigenous tuber.

Table 5: Indigenous food (IF) in line with SAFBDG in theory and practical classes

Description	Theory	Never / Rarely	Occasionally	Almost Every Time / Every Time	Practical	Never / Rarely	Occasionally	Almost Every Time / Every Time	Examples given by students
Starchy food	Count (n)	30	25	73	Count (n)	31	23	74	Sorghum, millet, maize, potatoes, amadumbe (taro)
	Row N %	23.4	19,5	57.1	Row N %	24.2	18.0	57.8	
Fruit	Count (n)	31	32	65	Count (n)	38	23	67	-
	Row N %	24.2	25	50.7	Row N %	29.7	18.0	52.3	
Vegetable	Count (n)	26	22	80	Count (n)	26	23	79	Thipe, Morogo/Amaranthus, spider plant, pumpkin leaves, spinach
	Row N %	20.3	17,2	62.5	Row N %	20.4	18	61.8	
Milk	Count (n)	26	36	66	Count (n)	30	29	69	Maas (fermented milk), yoghurt
	Row N %	20.3	28,1	51.6	Row N %	23.5	22	53.9	
Maas	Count (n)	50	48	30	Count (n)	59	35	34	
	Row N %	39.1	37,5	23.5	Row N %	46.1	27.3	26.6	
Yoghurt	Count (n)	47	47	34	Count (n)	52	34	42	
	Row N %	36.8	36,7	26.6	Row N %	40.6	26.6	32.8	
Legumes	Count (n)	36	48	44	Count (n)	38	44	46	Cowpeas, bambara groundnut, lentils
	Row N %	28.1	37,5	34.3	Row N %	29.7	34.4	36.0	
Eggs	Count (n)	23	33	72	Count (n)	25	26	77	-
	Row N %	17,9	25,8	56.3	Row N %	19.5	20,3	60.2	
Chicken	Count (n)	29	32	67	Count (n)	28	26	74	-
	Row N %	22.6	25	52.4	Row N %	21.8	20,3	57.9	
Fish	Count (n)	37	43	48	Count (n)	38	30	60	-
	Row N %	28.9	33,6	37.6	Row N %	29.7	23.4	46.9	
Fat	Count (n)	33	29	66	Count (n)	32	18	78	-
	Row N %	25.7	22,7	51.6	Row N %	25.0	14.1	60.9	
Sugar	Count (n)	28	28	72	Count (n)	31	14	83	-
	Row N %	21.9	21,9	56.3	Row N %	24.2	10.9	64.9	
Salt	Count (n)	32	28	68	Count (n)	31	12	85	-
	Row N %	25.0	21,9	53.2	Row N %	24.2	9.4	66.4	
Other sources of protein	Count (n)	0	0	0	Count (n)	0	0	0	-

In practical classes, a similar trend was observed. Vegetables (61.8%), starchy foods (63.3%), and grains again dominated, but indigenous species were inconsistently represented. Legumes (36.0%) remained underutilised, and tubers were seldom included (21.1%). Dairy foods such as milk, maas (26.6%), and yoghurt (32.8%) were occasionally covered, but these are better classified as heritage foods, reflecting traditional practices rather than indigenous species. These findings demonstrate that while the culinary curriculum aligns with the SAFBDG at the level of broad food categories, it does not adequately integrate IF species within those categories. Instead, teaching tends to emphasise non-indigenous or commercial items (spinach, maize, potatoes, lentils), while indigenous options (morogo, sorghum, millet, cowpeas, bambara groundnut) are marginalised. The frequent misclassification of amadumbe as indigenous illustrates persistent misconceptions, compounded by the absence of clear learning materials. Aligned with the aim of this study, these results show that second-year culinary students in Gauteng are not gaining sufficient awareness or skills to integrate IF into menu planning, despite the potential alignment of such foods with national dietary guidelines. Without correcting these gaps, graduates risk perpetuating Eurocentric menu practices, missing opportunities to promote IF knowledge, cultural heritage, and sustainable diets. Interestingly, despite the complete absence of ‘other sources of protein’ in students’ examples (Table 5), several indigenous protein-rich foods exist in SA, including plant-based options such as bambara groundnut (*Vigna subterranea*) and marama bean (*Tylosema esculentum*), as well as animal-based sources like mopane worms (*Gonimbrasia belina*) and indigenous edible insects, which are traditionally consumed across various communities for their high-quality protein and micronutrient content (Veldsman et al., 2023; van Huis, 2013; Musundire et al., 2016). Notably, students referred to indigenous plant-based foods only and made no mention of animal-based indigenous proteins, reflecting a significant gap between culinary training and local food biodiversity.

Reliability analysis

Table 6 shows that all scales demonstrated high reliability, with Cronbach’s alpha coefficients exceeding 0.70. Educational tools and familiarity measures ranged from 0.824 to 0.922, utilisation of IF from 0.855 to 0.859, and alignment with the SAFBDG from 0.964 to 0.970, indicating good to excellent internal consistency across all measures.

Table 6: Reliability analysis

Scale	Number of items	Cronbach's Alpha Coefficient
Educational tools in theory class	5	0.902
Educational tools in Practical class	5	0.922
The familiar educational tools within the curriculum	4	0.824
The utilization of Indigenous food/crops in theory class	7	0.859
The utilization of Indigenous food/crops in practical class	7	0.855
Discussion of Indigenous food in line with SAFBDG in theory class.	13	0.964
Discussion of Indigenous food in line with SAFBDG in practical class.	13	0.970

Discussion

The demographic profile of participants mirrors broader enrolment trends in SAHE, where Black female students constitute the majority (DHET, 2023). This is relevant since IF use is more common among Black individuals than other groups (Kesa et al., 2024). Although 84.4% reported consuming IF, knowledge was often limited and misconceptions common (e.g., confusing spinach with morogo). This gap indicates that while IF remain part of students' experiences, their integration into the culinary curriculum is insufficient. Fisher & du Rand (2022) similarly found that although culinary students were enthusiastic about indigenous ingredients, their baseline knowledge was fragmented, requiring deliberate instructional scaffolding and menu-development activities to strengthen understanding**.** Limited awareness of the nutritional value of IF (Vorster et al., 2008) and their association with poverty discourages engagement (Faber et al., 2010; Dweba & Mearns, 2011). Similar misconceptions emerged in this study, reflecting inadequate curriculum emphasis. Education initiatives and formal integration can address these gaps, while stronger links between rural farms and urban markets would increase visibility (Kesa et al., 2023; Mbhenyane, 2017; Spires et al., 2016**).** Mnguni & Giampiccoli (2019) emphasise that strengthening indigenous food visibility requires coordinated action across education, tourism, and community sectors, suggesting that SAHEIs play an essential role in repositioning IF as culturally valued and nutritionally relevant. Language and pedagogy also shape awareness. Parents often prioritise English instruction for academic success (Larenas et al., 2020), which can marginalise indigenous knowledge. Yet intercultural, multilingual education supports cultural diversity (Cenoz & Gorter, 2011). Students preferred bilingual instruction, which may enhance comprehension and retention. This aligns with Kolb's learning styles, where reflective learners benefit from textual resources in multiple languages, while others prefer practical engagement.

Curriculum tools showed limited integration: textbooks, case studies, and articles on IF were rarely used, while learner guides and teaching notes were inconsistently applied. Structured materials and formal inclusion in modules could promote IF use in hospitality practice. Currently, SAQA (2021) lacks relevant culinary manuals, and training remains Eurocentric, as noted by Mubangizi & Kaya (2015), Madlela (2022) and Makokotlela & Gumbo (2025). Fisher and du Rand (2022) highlight that Eurocentric curriculum structures marginalise indigenous ingredients, reinforcing the need for contextually relevant learning materials, recipe development tasks, and practical modules to re-centre cultural food knowledge. Ethnographic and visual resources support ingredient recognition (Schembri & Boyle, 2013). Nutritional education requires strengthening, particularly regarding indigenous species such as sorghum, millet, morogo, cowpeas and bambara groundnut, which align with SAFBDG recommendations but are often overlooked in favour of non-indigenous substitutes (Larenas et al., 2020). This neglect weakens the cultural relevance of dietary guidelines**.** Recent evidence shows that IF have strong nutritional and cultural value, supporting their integration into culinary education (Buthelezi et al., 2025). These findings highlight the need for systematic curriculum integration, visual and bilingual resources, and structured modules to promote IF knowledge. Such reform supports decolonisation, cultural appreciation, and sustainable diets (Mbhenyane, 2017; Madlela, 2022; Makokotlela & Gumbo, 2025). While students consume IF, their awareness remains limited, and curriculum integration is weak. Embedding IF knowledge into culinary education can strengthen cultural heritage, curriculum relevance, and food security in SA.

Conclusion

The inclusion of IF knowledge in the culinary curriculum is essential for promoting sustainable food systems, improving health, and advancing decolonisation in SAHE. Culinary students should be equipped with the skills and awareness to integrate IF into menu planning and professional practices, thereby contributing to food security and the preservation of cultural heritage**.** The findings from this study show that while most students consume IF, their knowledge remains limited and often confused with non-indigenous examples. Encouragingly, students expressed strong interest in learning more about IF and their nutritional benefits, with a preference for bilingual instruction in both English and their native language. This indicates that curriculum reform should not only include indigenous content but also respond to student learning preferences, correct misconceptions, broaden students' exposure to the full diversity of indigenous ingredients, combining bilingual teaching, visual tools, and hands-on practical sessions to ensure engagement. A supportive environment where scholars and students can access information resources, complemented by collaboration between SAHE institutions, communities, and households, will play a crucial role in fostering a deeper understanding and appreciation of IF practices. In line with the aim of this study, systematic integration of IF knowledge into culinary education, supported by responsive teaching methods, will better prepare graduates to promote sustainable diets, protect cultural heritage, and contribute to the transformation of SA's food and education systems.

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