

Existing status and agribusiness potential of *Acacia catechu* based entrepreneurship in Una and Kangra districts of Himachal Pradesh, India

ABSTRACT

The current research is focused on "The existing status and agribusiness potential of *Acacia catechu* based entrepreneurship in Una and Kangra districts of Himachal Pradesh." by using 25 entrepreneurs. In Una districts, there were 17 **kattha (cutch)** entrepreneurs, while in Kangra districts, there were 8 kattha entrepreneurs. There are a lot of kattha entrepreneurs in one district, which suggests that khair-based entrepreneurship has a lot of potential for the agro industry. 44% of business owners who responded to the survey believed that the earnings **from kattha are promising, demonstrating the high potential of kattha production for generating money.** However, there were **several issues that the kattha entrepreneurs were dealing with, including the lack of highly skilled labour locally,** the high cost of raw materials, diverse government laws, the growth of large-scale enterprises, high capital requirements, distant markets, and the need for highly trained labour. Government should enact such laws that encourage local labour to participate in this kattha-based entrepreneurship and proper cutch management should be carried out at the manufacturing site.

Keywords: Agribusiness, Acacia catechu, Kattha, Production, Skilled labour, Manufacturing site

1. INTRODUCTION

There are several commercial plants in Himachal Pradesh, and *Acacia catechu* is one of the most important ones. *Acacia catechu* belongs to Fabaceae family and subfamily is Mimosoideae. *Acacia catechu* wild is angiosperm and is a common species found throughout central Asia, particularly in Pakistan, India, and Bangladesh (Hashmat and Hussain, 2013). Cutch tree, Terra Japonica, and Black Catechu are further names for *Acacia catechu*. Additionally, it is known as Khadira in Sanskrit and Khair in Hindi. Earlier, this plant was referred to as Kat or Cacho. *Acacia catechu* is a tree that may be found across India. The eastern slopes of the Western Ghats and the Himalayan regions serve as its primary habitats in this nation (Hemashree and Thangavelu, 2018). *Acacia catechu* (Khair) trees grow at an elevation of 1300 metres above sea level. It is found in Mandi, Hamirpur, Kangra, Solan, Sirmaur, Una, Chamba, Shimla, and Bilaspur (Kishor *et al.*, 2018).

1.1 Uses of Khair Tree:

There are various uses of khair tree. The tree's heartwood is primarily utilised to make the marketable decoctions Kattha and Cutch (obtained after filtering). In ayurvedic remedies, kattha is frequently utilised. Additionally, it is an important part of the masticatory process in India, which involves chewing betel leaf (pan) (Singh and Lal, 2006). *Acacia catechu* is one of the most significant medicinal plants in ayurveda which is frequently utilised for mother-and-child healthcare. A number of common diseases including diabetes, ulcers, and skin conditions are treated using a medicine made from khair's heartwood. Their antioxidant qualities could be the cause of these therapeutic effects (Devi *et al.*, 2011).

Along with its economic significance, it is also significant for people, especially rural areas living near catechu forests, as it provides a secondary source of income for them. As a result the people who live in the Shivalik range have incorporated catechu into both their socioeconomic and cultural lives (Singh and Lal, 2006).

It has a variety of pharmacological effects, including antibacterial, antimycotic, antioxidant, immunomodulating, antipyretic, anti-diarrhoeal, antisecretory, and antiulcer action. Because of these qualities, kattha has been used therapeutically to treat conditions including Spongy Gums, Bleeding Gums,

Stomatitis, Leucoderma, Urinary Disorder, Diabetes, Leprosy, Psoriasis, Syphilis, and more (Rashid *et al.*, 2015).

1.2 Processing of Khair:

15-year-old trees are typically harvested. The entire tree is uprooted as deeply as possible in order to harvest it. After the tree has been felled, all twigs and small branches are removed, and logs are prepared by bucking. The log is then entirely debarked, including the sap wood. The remainder of the heartwood is then chopped into small chips. Two thirty-minute-long boils are given to the chips. To obtain more concentrated lali or kattha, the juice is moved to a pan after each boiling operation and further boiled for two hours, on average. When making kattha, the weight and concentration can be increased by mixing china clay or wheat flour. The kattha (Lali) is brought to the market for sale when it is further thickened and completely concentrated after being stored in a large clay pot for evaporation (Kabir *et al.*, 2016).

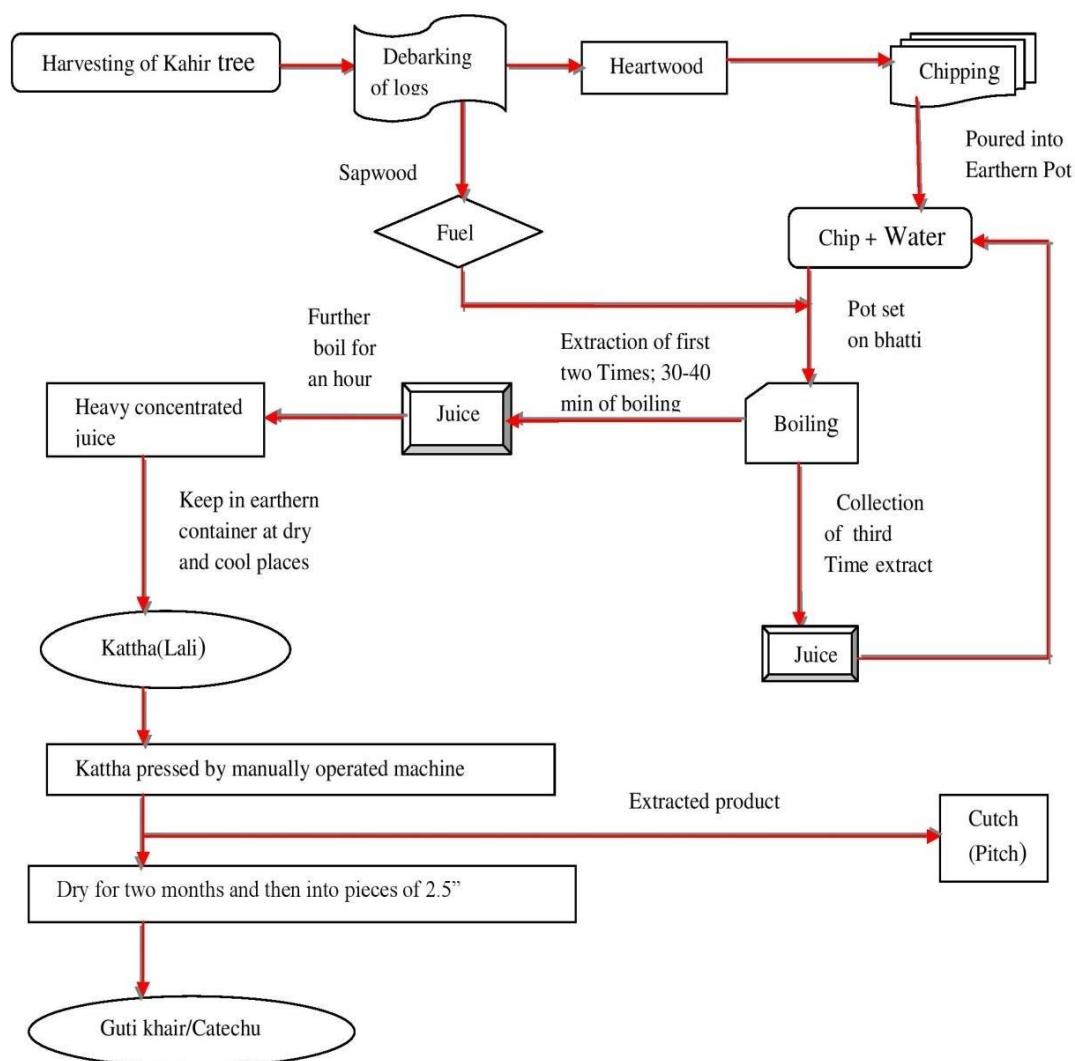


Figure 1: Flow chart of processing of Khair for kattha/cutch production by country method given by Kabir *et al.*, 2016

1.3 Yield of Kattha:

20 to 30 year old khair trees generate the highest yields of khair, and the rate of maximum khair output was 0.14 kg per kilogramme of heartwood. As tree girth diameter increased so does the price of khair trees and their production (Ferdousee *et al.*, 2009).

Table 1: Yield Parameters of *Acacia catechu* for Different Diameter Classes by Wanage *et al.* (2013)

Sr. No.	Diameter Classes (cm)	Stem heart wood (kg tree⁻¹)	Root heart wood (kg tree⁻¹)	Total heart wood (kg tree⁻¹)	Per cent heart wood weight of the total tree weight
1.	0-5	0.00	0.07	0.07	1.67
2.	5-10	9.48	3.17	12.14	36.74
3.	10-15	28.83	11.42	40.25	46.18
4.	15-20	71.33	21.92	93.25	46.66
5.	20-25	125.23	30.17	155.40	47.41
6.	25-30	204.45	71.67	276.12	45.01

The economic yield begins with trees that reach a DBH of 15 cm and a height of 9 m, producing 40.30 kg of total heartwood per tree. Similarly, trees with a DBH of 30 cm and a height of 15 m can yield approximately 303.4 kg of total heartwood. The developed yield table serves as a tool to estimate the heartwood production of *Acacia catechu* (Wanage *et al.*, 2013).

2. NEED OF STUDY

An important traditional industry in India that relies on forests is the production of kattha. Kattha has a wide range of uses. It has numerous applications outside of the pharmaceutical industry. It demonstrates the scope of the kattha and cutch industries. The product is expensive. The *Acacia catechu* plant can thrive in the climate of Himachal Pradesh's Una and Kangra districts, and as a result, there is a significant khair plantation in these regions' forests. There are numerous kattha manufacturing plants in these districts, and this industry has a lot of potential. Prior to this, little or no research has been done to determine the agricultural potential of kattha-based entrepreneurs. Therefore, in order to identify the problems experienced by the entrepreneur and to recommend various remedies and policy issues to boost the kattha based entrepreneur's profits, there needs to be adequate study in this area.

2.1 Objectives of the study:

- To study the existing status of *Acacia catechu* based entrepreneurship in Kangra and Una Districts of Himachal Pradesh.
- To assess the potential of the entrepreneurship in employment and income generation and to suggest policy issues.

3. METHODOLOGY

The present study has been conducted in Kangra and Una districts of Himachal Pradesh. The following methodology has been adopted to meet out the specified objectives:

3.1 Research Design

A research design is regarded as the framework or plan for the study that aids in data collecting and analysis as well as serving as a guide. For the concerned research study, a descriptive research design was chosen.

3.2 Population and Research Area

Out of 12 districts of Himachal Pradesh maximum number of kattha bhattis and boilers are registered in Una districts. Entrepreneurs of kattha of Kangra and Una districts of Himachal Pradesh comprised of population for the present study.

3.3 Sampling technique

Sampling is a strategy for choosing specific individuals or a subset of the population in order to draw conclusions from them statistically and estimate the characteristics of the entire population. A sample unit is the number of people in a sample. Convenience sampling was used to choose the respondents based on their availability.

3.4 Sample size

The number of individuals in a sample is called a sample size. A sample size of 25 kattha entrepreneurs has been selected using the exhaustive sampling technique for the present study.

3.5 Data collection

Both primary and secondary data were collected from the study area.

3.5.1 Primary data

Primary data was collected through personal interview method using structured questionnaire and by interacting with the kattha entrepreneurs in the study area.

3.5.2 Secondary data

Secondary data refers to information that has been previously collected and compiled by other individuals or organizations. For this study, secondary data was gathered from various government publications and other publicly available sources. These sources include reports, records, and statistics that were not specifically collected for the purpose of this research but provide valuable insights and background information relevant to the study.

3.6 Applied analytical tools

The analytical tools employed in this study are designed for specific data applications and visualizations. Simple mathematical techniques were utilized to achieve the study's objectives, aiming to keep the analysis straightforward and easily comprehensible. These tools allow for a clear presentation of the data, making the findings accessible and straightforward for interpretation.

3.6.1 Percentage method

To find out the percentage, individual frequency was divided by total frequency and multiplied by 100. Formula used for the percentage method is:

$$P = \frac{X}{Y} \times 100$$

Where,

P = Percentage

X = Number of respondents falling in specific category to be measured.

Y = Total number of respondents.

3.6.2 Arithmetic Mean:

The arithmetic mean has been applied to study the opinion of the sample respondents on 5 scales Likert Scale for different statements. The arithmetic mean has been calculated by assigning numerical value to the quantitative statements. These values have been assigned for the qualitative responses as one for strongly disagree, two for disagree, three for neutral, four for agree and five for strongly agree, and one for highly dissatisfied, two for dissatisfied, three for neutral, four for satisfied and five for highly satisfied. The formula used for Arithmetic Mean is:

$$\bar{X} = \frac{\sum Xi}{N}$$

Where,

X = Arithmetic Mean

$\sum Xi$ = Sum of the value of observations on the variables

N = Number of observations

3.6.3 Total Weighted Score Method

The Total Weighted Score Method is a decision-making technique used to evaluate and compare multiple options or alternatives based on specific criteria. In this method, each criterion is assigned a

weight that reflects its relative importance in the decision-making process. The alternatives are then scored according to how well they meet each criterion. These scores are multiplied by the weights of the respective criteria, and the results are summed to produce a total score for each alternative.

4. RESULT AND DISCUSSION

4.1 Demographic variables of selected entrepreneurs

Table 2: Age group of respondents

Age Groups	Frequency	Per cent
Less than 45 years	8	32.00
45-55 years	11	44.00
Above 55 years	6	24.00
Total	25	100.00

Table 2 reveals that 44.00% of the respondents fall within the age group of 45 to 55 years, followed by 32.00% who are under 45 years, and 24.00% who are above 55 years. This suggests that the majority of the sample represents the working-age population.

4.2 Gender Wise Distribution of Respondents

Table 3: Gender Status of the Respondents

Gender	Frequency	Percent
Female	00	00
Male	25	100.00
Total	25	100.00

Table 3 clearly shows that 100% of the respondents were male, with no female participants in the sample. This highlights a significant gender imbalance in the kattha industry. This suggests a gender-specific industry.

4.3 Number of employees employed in the business

Table 4: Number of people employed in business

Number of employees	Frequency	Percent
1. Less than 25	05	20.00
2. 25 – 50	11	44.00
3. 50-100	09	36.00
4. More than 100	00	00.00

From table 4 it is concluded that 44.00 percent respondents gave employment to 25-50 number of people, 36.00 percent respondents gave employment to 50-100 number of people and only 20.00 percent respondents gave employment to less than 25 people.

4.4 Status of attitude of respondents of Kangra and Una Districts of Himachal Pradesh towards various statements regarding raw material.

Table 5: TWS of various statements regarding raw material

Statements		Responses (weightage)						
Sr. no.	Particulars	Strongly Agreed (5)	Agreed (4)	Neither Agreed nor disagreed (3)	Disagreed (2)	Strongly Disagreed (1)	TWS	Rank
1.	There is unavailability of raw material.	00	02	01	04	18	37	5
2.	Raw material is timely available.	20	03	02	00	00	118	1
3.	Sufficient amount of raw material is available.	00	15	06	03	01	85	3
4.	Raw material is available at optimum cost.	02	05	02	06	10	58	4
5.	Raw material is very costly.	18	04	00	01	02	110	2

Table 5 represents the different parameters regarding raw material that tells about the raw material in the form of the total weighted score(TWS) and their respective ranks.It can be observed that most of the respondents placed with the highest TWS i.e 118 which shows the strongly agreeeness among the respondents regarding raw material is timely available .It can also be observed that least of the respondents with the lowest TWS i.e 37 given the 5th rank which shows the strongly disagreeableness to that there is unavailability of raw material.

4.5 Status of attitude of respondents of Kangra and Una Districts of Himachal Pradesh towards various attributes regarding labour.

Table 6 represents the different parameters reagrding labour that tells about the labour in the form of the total weighted score(TWS) and their respective ranks.It can be observed that most of the respondents placed with the highest TWS i.e 125 which shows the strongly agreeeness among the respondents regarding highly skilled labour is required .It can also be observed that least of the respondent with the lowest TWS i.e 33 given the 5th rank which shows the strongly disagreeableness to that there is unavailability of skilled labour.

Table 6: TWS of various statements regarding labour

Statements		Responses (weightage)						
Sr. no.	Particulars	Strongly Agreed (5)	Agreed (4)	Neither Agreed nor disagreed (3)	Disagreed (2)	Strongly Disagreed (1)	TWS	Rank
1.	There is unavailability of skilled labour	00	00	01	06	18	33	5
2.	labour is easily available.	22	03	00	00	00	122	2
3.	There are strict labour laws	07	15	00	03	00	101	3
4.	Highly skilled labour is	25	00	00	00	00	125	1

	required							
5.	Skilled labour is available locally	00	00	00	05	25	35	4

4.6 Status of responses of respondents of Kangra and Una Districts of Himachal Pradesh towards various statements regarding *Acacia catechu* based entrepreneurship.

Table 5: TWS of various statements regarding *Acacia catechu* based entrepreneurship

Statements	Responses (weightage)					TWS	Rank
	Strongly Agreed (5)	Agreed (4)	Neither Agreed nor disagreed (3)	Disagreed (2)	Strongly Disagreed (1)		
1. Problems are created by government policies.	18	04	00	02	01	111	2
2. Government policies highly affected your business	16	05	00	03	01	107	3
3. Government support is needed	12	13	00	00	00	112	1
4. Technology is not updated	1	4	3	9	8	56	10
5. Unavailability of modern technology	3	1	2	7	12	51	11
6. Modern technology is expensive	9	8	2	4	2	93	6
7. Large scale industries affect your business activity	18	1	1	3	2	105	5
8. Competition in the market affects the price of the output	00	00	3	8	14	39	12
9. Bank support is available for finances	13	9	00	3	00	107	4
10. Easy availability of finances	11	6	1	3	4	92	7
11. Profits are sufficient	8	3	1	3	10	71	9
12. Profits are encouraging	11	5	2	6	1	91	8

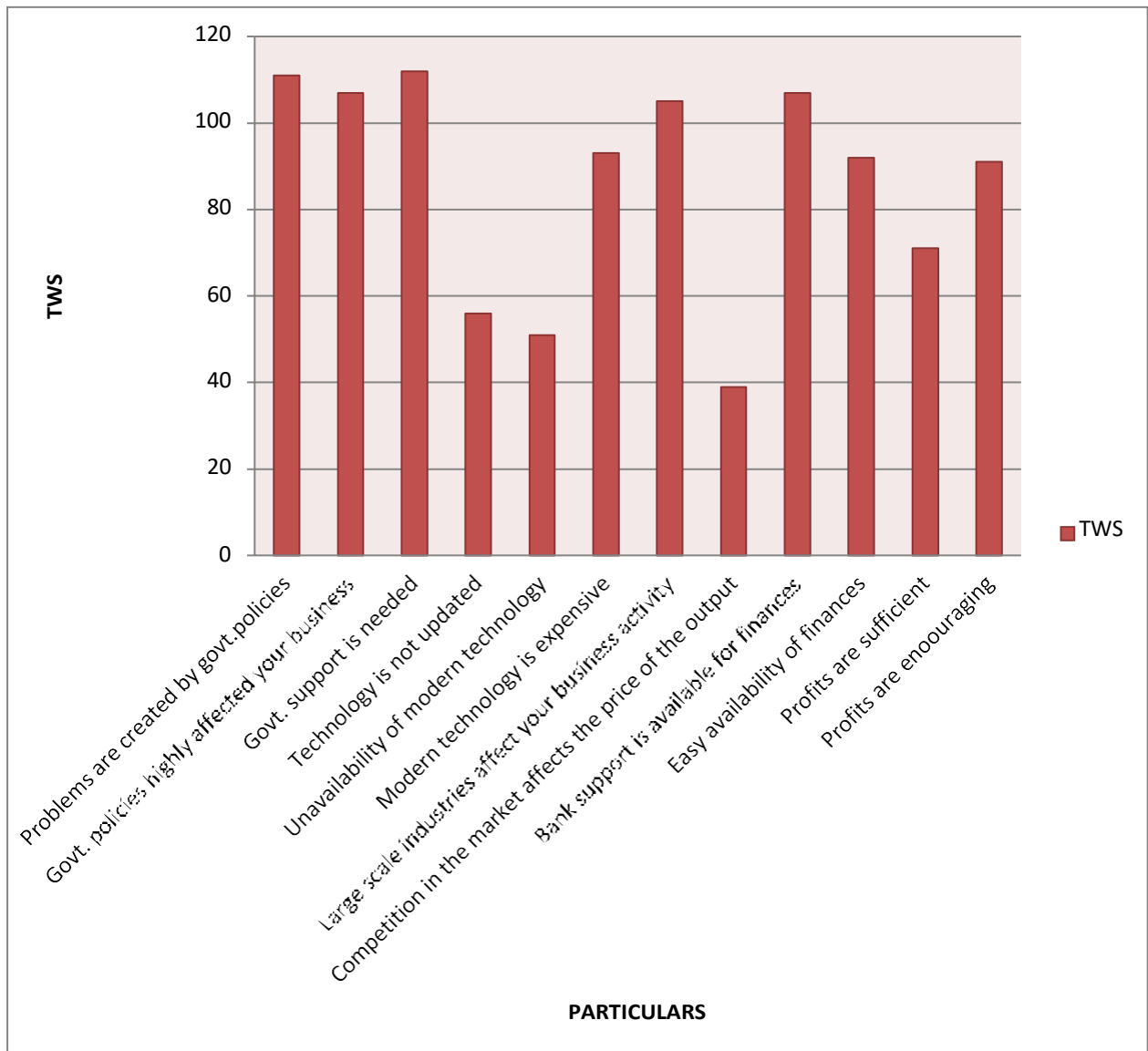


Figure 2: TWS of particulars regarding technology and role of government

Table 6 and figure 2 represent the different parameters regarding *Acacia catechu* based entrepreneurship in the form of the total weighted score (TWS) and their respective ranks. It can be observed that most of the respondents placed with the highest TWS i.e. 125 which shows the strong agreement among the respondents regarding government support is needed. It can also be observed that least of the respondent with the lowest TWS i.e. 33 given the 12th rank which shows the strong disagreement to that competition in the market affects the price of the output.

5. CONCLUSION

Khair-based entrepreneurship faces numerous challenges that impact its growth and sustainability. The high costs of raw materials and labor, coupled with financial constraints, make it difficult for entrepreneurs to expand their businesses. Financial risks, particularly due to price instability in the market, are the primary concern, followed by technology-related risks, as the production process is highly dependent on precise technological operations. Additionally, space and capital limitations hinder the establishment of new production units. The lack of skilled local labor, compounded by the heavy workload involved in collecting khair heartwood, further complicates the industry. Government policies, including high taxes at various stages of production, transportation, and marketing, also add to the burden faced by these entrepreneurs.

These challenges can be effectively mitigated through enhanced access to financing, which would provide entrepreneurs with the necessary capital to scale operations and manage risks. Additionally,

improved technological support, including access to advanced production methods and training, would optimize efficiency and reduce losses. Furthermore, strategic policy reforms—such as tax reductions and regulations promoting sustainable harvesting—would create a more favorable business environment, fostering growth and ensuring the long-term success of khair-based entrepreneurship.

6. SUGGESTIONS

Based on the findings of this study, it is recommended that improvements be made in several areas to support khair-based entrepreneurship. First, better management of cutch, which is often wasted in Kattha Bhattis and factories, should be implemented. Additionally, proper packing of kattha before transportation is essential to prevent it from drying out. The government should increase oversight of these production units to ensure that only dry heartwood from khair trees is used, preventing the over-exploitation of green trees. Marketing support and infrastructure should be provided to small entrepreneurs, and the government should consider reducing tax rates on the transportation of kattha to help lower costs and encourage business growth. These measures would contribute to a more sustainable and efficient industry for khair-based entrepreneurs.

Disclaimer (Artificial intelligence)

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Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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Details of the AI usage are given below:

- 1.
- 2.
- 3.

CONFLICT OF INTEREST

None

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