



**TechRate**  
AUDIT COMPANY

# **BNBCharity**

## **Smart Contract Security Audit**

# Disclaimer

This is a limited report on our findings based on our analysis, in accordance with good industry practice as at the date of this report, in relation to cybersecurity vulnerabilities and issues in the framework and algorithms based on smart contracts, the details of which are set out in this report. In order to get a full view of our analysis, it is crucial for you to read the full report. While we have done our best in conducting our analysis and producing this report, it is important to note that you should not rely on this report and cannot claim against us on the basis of what it says or doesn't say, or how we produced it, and it is important for you to conduct your own independent investigations before making any decisions. We go into more detail on this in the below disclaimer below – please make sure to read it in full.

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The analysis of the security is purely based on the smart contracts alone. No applications or operations were reviewed for security. No product code has been reviewed.

# Background

TechRate was commissioned by BNBCharity to perform an audit of smart contracts:

<https://bscscan.com/address/0x4551f4c96fb23745a4a52af6d95070667c1e12d8#code>

The purpose of the audit was to achieve the following:

- Ensure that the smart contract functions as intended.
- Identify potential security issues with the smart contract.

The information in this report should be used to understand the risk exposure of the smart contract, and as a guide to improve the security posture of the smart contract by remediating the issues that were identified.

# Issues Checking Status

Issue description		Checking status
1.	Compiler errors.	Passed
2.	Race conditions and Reentrancy. Cross-function race conditions.	Passed
3.	Possible delays in data delivery.	Passed
4.	Oracle calls.	Passed
5.	Front running.	Passed
6.	Timestamp dependence.	Passed
7.	Integer Overflow and Underflow.	Passed
8.	DoS with Revert.	Passed
9.	DoS with block gas limit.	Low issues
10.	Methods execution permissions.	Passed
11.	Economy model of the contract.	Low issue
12.	The impact of the exchange rate on the logic.	Passed
13.	Private user data leaks.	Passed
14.	Malicious Event log.	Passed
15.	Scoping and Declarations.	Passed
16.	Uninitialized storage pointers.	Passed
17.	Arithmetic accuracy.	Medium Issue
18.	Design Logic.	Passed
19.	Cross-function race conditions.	Passed
20.	Safe Open Zeppelin contracts implementation and usage.	Passed
21.	Fallback function security.	Passed

# Security Issues

## ✓ High Severity Issues

No high severity issues found.

## ✓ Medium Severity Issues

### 1. Rate calculation

Issue:

- The function `swapTokens()` transfers to marketing address 3/8 of swapped BNBs not 3%.

Recommendation:

Make it marketing fee equals to 3% as it written on description.

## ✓ Low Severity Issues

### 1. Out of gas

Issue:

- The function `includeInReward()` uses the loop to find and remove addresses from the `_excluded` list. Function will be aborted with `OUT_OF_GAS` exception if there will be a long excluded addresses list.
- The function `_getCurrentSupply` also uses the loop for evaluating total supply. It also could be aborted with `OUT_OF_GAS` exception if there will be a long excluded addresses list.

Recommendation:

Check that the excluded array length is not too big or apply another method of calculating excluded balances.

### 2. Extra calculation

Issue:

- The function `_transfer()` divides balance by 100 and pass it to `buyBackTokens()` function.

Recommendation:

Variable `buyBackUpperLimit` can be decreased instead of extra calculation.

### 3. Centralized risk

#### Issue:

- The function `addLiquidity()` sends owner addresses as `to` parameter. Owner address will acquire the generated LP tokens and after while accumulate a huge portion of LP tokens. It's unsecure to hold on one centralized address such a significant portion.

#### Recommendation:

Send contract or zero address as `to` parameter.

## Owner privileges (In the period when the owner is not renounced)

- Owner can lock and unlock. By the way, using these functions the owner could leave as owner even after the ownership was renounced.
- Owner can change:
  - included in reward members;
  - excluded from fee members;
  - tax and liquidity fees;
  - max transaction amount;
  - marketing divisor;
  - min tokens before swap;
  - buy back upper limit;
  - marketing address;
  - swap and liquify enabled status;
  - buy back enabled status;

# Conclusion

Smart contracts contain medium and low severity issues! Liquidity pair contract's security is not checked due to out of scope.

29% sent to liquidity and 100% of that LP Ownership renounce to Binance Charity.

51% transferred to 0x3f5CE5FBFe3E9af3971dD833D26bA9b5C936f0bE

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## *TechRate note:*

*Please check the disclaimer above and note, the audit makes no statements or warranties on business model, investment attractiveness or code sustainability. The report is provided for the only contract mentioned in the report and does not include any other potential contracts deployed by Owner.*





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