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AUDIT COMPANY

# HAKURYU

# Smart Contract Security Audit

TechRate

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# 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 HAKURYU to perform an audit of smart contracts:

https://bscscan.com/address/0xefbE739c5B999C5Bca13be7Bb238610a3A8Fec93#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. | Passed |
| 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. | Passed |
| 18. | Design Logic. | Low issues |
| 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

No medium severity issues found.

## Low Severity Issues

### 1. Out of gas

**Issue:**

- The function `airdropDifferentNumberOfTokens()` uses the loop to airdrop tokens to multiple addresses. Function will be aborted with `OUT_OF_GAS` exception if there will be a long addresses list.
- The function `airdropSameNumberOfTokens()` also uses the loop to airdrop tokens to multiple addresses. Function will be aborted with `OUT_OF_GAS` exception if there will be a long addresses list.
- The function `excludeMultipleAccountsFromFees()` also uses the loop for batch exclude / include addresses. It also could be aborted with `OUT_OF_GAS` exception if there will be a long addresses list.

**Recommendation**:
Check that the addresses array length is not too big.

### 2. Zero address

**Issue:**

- The function `setMarketingWallet()` check old value for zero address.
- The function `setDevWallet()` also check old value for zero address.
- The function `updateUniswapV2Router()` not check new address is zero.

**Recommendation**:
Check that the new addresses are not zero.

## Notes:

- Swap tokens use swap tokens for BNBs - 3 times. This operation can be called only once to use less GAS.
- No limits on fee change.
- New uniswap pair cannot be added to automatedMarketPair array.

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

- Owner can airdrop tokens.
- Owner can change Uniswap router address.
- Owner can include in and exclude from the fees.
- Owner can change marketing and dev wallet addresses.
- Owner can change liquidity, marketing and dev fees.
- Owner can change blacklist timeout value.
- Owner can change maximum transaction limit.
- Owner can include in and exclude from automatedMarketMakerPairs array.
- Owner can set blacklist timeout for any address.
- Owner can launch contract.
- Owner can enable / disable trading.
- Owner can withdraw contract tokens to any address.
- Owner can withdraw contract BNBs to any address.

# Conclusion

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

**Liquidity locking details NOT provided by the team.**

***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.***